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ANNUAL REPORT

OF THE

HEALTH DEPARTMENT

OF THE

CITY OF RICHMOND, VA.

FOR THE

Year Ending December 31, 1911

RICHMOND:
CLYDE W. SAUNDERS, CITY PRINTER
1912

ANNUAL REPORT

OF THE

HEALTH DEPARTMENT

Compliments of

Board of Health

and

Dr. E. C. Levy

Chief Health Officer

PLEASE EXCHANGE

Year Ending December 31, 1911

RICHMOND:
CLYDE W. SAUNDERS, CITY PRINTER
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HEALTH DEPARTMENT, CITY OF RICHNOND.

BOARD OF HEALTH.

W. T. OPPENHIMER, M. D., PRESIDENT.
R. D. GARCIN, M. D.,
JAMES R. GORDON,
M. D. HOGE, Jr., M. D.,
JAMES E. PHILLIPS, Jr.
CLERK, E. T. TERRELL.

CHIEF HEALTH OFFICER.

ERNEST C. LEVY, M. D.

MEDICAL INSPECTOR.

C. C. HUDSON, M. D.

CITY BACTERIOLOGIST.

AUBREY H. STRAUS, B. S.

DIAGNOSTICIAN.

W. J. WEST, M. D.

DIPHTHERIA CONSULTANT.

P. D. LIPSCOMB, M. D.

REGISTRAR OF VITAL STATISTICS.

E. L. HASKER.

CHIEF NURSE.

MISS ELISABETH DETWILER, R. N.

DISTRICT PHYSICIANS.

J. G. TRANT, M. D., 1st Dist.,
J. F. HUBBARD, M. D., 2nd Dist.,
J. F. Crane, M. D., 3rd Dist.
T. E. STRATTON, M. D., 4th Dist.,
L. D. BATKINS, M. D., 5th Dist.,
J. W. SLOAN, M. D., 6th Dist.,
E. T. RUCKER, M. D., 7th Dist.

TUBERCULOSIS DISPENSARIES.

P. D. LIPSCOMB, M. D., Chief of 3d Street Dispensary.
GILES B. COOK, M. D., Chief of Franklin Street Dispensary.

MILK AND FOOD SUPPLIES.

E. M. NOBLE, Food Inspector,
C. J. B. HARE, Assistant,
T. J. STRAUCH, Dairy Inspector,
P. L. CANTRELL, Assistant.

INSPECTOR OF PLUMBING.

THOMAS M. LANDERS.
E. A. BOAZ, ASSISTANT.

SANITARY INSPECTORS.

W. T. TUCK, Chief Inspector and 4th Dist.
W. A. CRUMP, 1st Dist.,
W. H. MOSLEY, 2nd Dist.,
S. A. HALL, 3rd Dist.,
T. W. MITCHELL, 5th Dist.,

FUMIGATOR.

JAMES F. WALLER.

STENOGRAPHER.

E. E. STARKE.

RICHMOND, VIRGINIA, *February* 15, 1912.

HONORABLE D. C. RICHARDSON,
Mayor of the City of Richmond.

SIR:

The Board of Health of the City of Richmond submits, as their report for the year ending December 31, 1911, the accompanying reports of the Chief Health Officer and his subordinate officers.

Very respectfully,
W. T. OPPENHIMER, M. D., President.
JAS. R. GORDON.
RAMON D. GARCIN, M. D.
M. D. HOGE, Jr., M. D.
JAS. E. PHILLIPS, Jr.

ANNUAL REPORT.

REPORT OF THE CHIEF HEALTH OFFICER.

RICHMOND, VIRGINIA, *February* 15, 1912.

To the Honorable Board of Health of the City of Richmond.

GENTLEMEN:

I have the honor herewith to submit for your consideration the fortieth annual report of the Health Department of the City of Richmond. The general make-up of this report is the same as of those which I have submitted in former years, comprising (1) my sixth annual report as Chief Health Officer under the ordinance of June 18, 1906; (2) a financial statement of the appropriations, expenditures and reimbursements in connection with the various accounts of the Department; (3) tables of vital statistics, and (4) reports of the other officers of the Health Department and of certain other officers of the city government, not officially connected with the Health Department, but whose work in part relates to, or is performed for, our Department.

In my opinion the present report surpasses in interest all previous ones. Not only will you, as the official guardians of the health of the citizens of Richmond, find this report to repay the most careful study and consideration, but every citizen who realizes that the physical vigor of himself and of his family, as well as of the people at large, is a matter of the most fundamental importance will find set forth in the following pages much which must appeal to him as worthy of the closest attention.

As in each succeeding year since I have been in office, I am able to report to you still further progress in our work and general and special results of the most satisfactory kind.

The fallacy of considering too closely the crude death rate of any city as an index to its healthfulness has been so often exploded that no competent sanitary authority or vital statistician lays any great stress on it in judging of the respective claims of cities. This is especially true when comparing cities which differ widely in the proportion of white and colored population and in the number of deaths among nonresidents. This crude death rate has, however, a certain amount of value when compared with the death rates of former years in the same community, provided the estimates of population are fairly accurate and the character of the population has not greatly changed.

It is, therefore, with considerable satisfaction that I am able to report that there were 169 fewer deaths in Richmond during 1911 than during 1910, in spite of the increase in population. There were 94 fewer deaths among the white population and 75 fewer among the colored. Expressed in terms of the death rate per 1,000 inhabitants, thus taking the increased population into calculation, there was a decrease of 1.55 in the death rate of the entire population. There was a decrease of 1.37 per 1,000 in the death rate of the white population and of 1.82 in the colored.

For the first time in the past four years, there was a decrease in the number of nonresidents dying in Richmond, there being 267 in 1911, against 331 in 1910, a decrease of 64. The number of nonresident decedents, though smaller than in 1910, was nevertheless greater than in any preceding year and was responsible for 2.06 deaths per 1,000 out of a total death rate of 21.02 per 1,000, or nearly ten per cent. of the total.

Table Showing the Number of Deaths and the Death Rate for Each Year Since 1907, *with Nonresidents Included, among Nonresidents, and among Residents.*

YEAR	NUMBER OF DEATHS.			DEATH RATE PER 1,000 INHABITANTS.		
	Non-Residents Included	Non-residents	Non-residents Excluded	Non-residents Included	Non-residents	Non-residents Excluded
1907	2 652	155	2 497	23.38	1 37	22.02
1908	2 486	167	2,319	21.66	1.45	20.20
1909	2,404	219	2,185	20.69	1.88	18.81
1910	2 887	331	2,556	22 57	2 59	19.98
1911	2,718	267	2,451	21.02	2.06	18.96

From the above table it is seen that the death rate for 1911 was the lowest of any during the past five years (that is, since the reorganization of the Health Department) except for the year 1909. The declining death rate is gratifying, although, as stated above, the crude death rate is not to be taken too seriously as an index of sanitary conditions or of the work of the health department in any community.

COMPARATIVE DEATH RATE FROM SPECIAL CAUSES.

Of real value in judging of the efficiency of the work of a health department is a study of the comparative death rates from certain special diseases and for certain age periods, the study covering a period of years in order to eliminate the natural annual fluctuations which occur from year to year. When such a comparison is made we cannot but feel great satisfaction at the results which have been obtained. In making such a comparison the actual number of deaths from any cause is likely to be misleading, on account of the fact that annexation of Manchester in 1910 added nearly 9 per cent. to the population of Richmond. This error is eliminated by making the comparison between death rates rather than between the actual number of deaths.

Table Giving Death Rate from Certain Important Causes, in the City of Richmond, Virginia, for the years 1907, 1908, 1909, 1910 and 1911; the Average Annual Death Rate 1907-1911, Inclusive, and a Comparison of the Death Rate for These Years.

CAUSE OF DEATH	Annual Average 1907 to 1911	DEATH RATE PER 100,000					DECREASE IN DEATH RATE				
		1907	1908	1909	1910	1911	1907 to 1908	1908 to 1909	1909 to 1910	1910 to 1911	1907 to 1911
Typhoid fever	31.0	41.4	49.7	24.1	21.9	17.8	* 8.3	25.6	2.2	4.1	23.6
Malarial fever	9.5	28.2	6.1	7.7	4.7	.8	22.1	* 1.6	3.0	3.9	27.4
Measles	13.8	30.9	5.2	.9	22.7	9.3	25.7	4.3	* 21.8	13.4	21.6
Scarlet fever	.8	0.0	.9	.9	0.0	2.8	* .9	0.0	.9	* 2.8	* 2.8
Whooping cough	23.7	2.6	28.7	11.2	36.7	39.5	* 26.1	17.5	* 25.5	* 2.8	* 36.9
Diphtheria	9.1	14.1	3.5	7.7	10.2	10.1	10.6	* 4.2	* 2.5	.1	4.0
Dysentery	17.9	25.6	15.7	11.2	12.5	24.7	9.9	4.5	* 1.3	* 12.2	.9
Influenza	26.7	41.4	33.1	12.9	25.8	20.1	8.3	20.2	* 12.9	5.7	21.3
Pneumonia (Lobar or unqualified)	127.9	200.2	132.4	102.4	115.7	88.9	67.8	30.0	* 13.3	26.8	111.3
All diseases of the respiratory system (consumption not included)	291.0	401.2	294.5	249.6	283.8	225.9	106.7	44.9	* 34.2	57.9	175.3
Consumption	212.6	229.3	194.3	208.3	223.6	207.4	35.0	* 14.0	* 15.3	16.2	21.9
Other tubercular diseases	37.9	41.4	30.5	44.8	30.5	42.5	10.9	* 14.3	14.3	* 12.0	* 1.1
Cancer (of all organs)	79.1	70.5	73.2	79.2	85.2	87.4	* 2.7	* 6.0	* 6.0	* 2.2	* 16.9
Apoplexy	141.0	149.0	122.8	135.2	150.1	147.7	26.2	* 12.4	* 14.9	2.4	1.3
Organic heart disease	164.1	153.4	172.5	152.4	174.3	167.7	* 19.1	20.1	* 21.9	6.6	* 14.3
Bright's disease	141.7	112.9	139.4	133.4	181.0	161.7	* 26.5	6.0	* 27.6	* .7	48.8
Diarrhea (under two years)	134.8	142.0	122.0	126.5	182.1	151.6	20.0	* 4.5	* 5.6	* 19.5	* 9.6
Diarrhea (over two years)	32.7	49.4	32.2	32.7	26.6	22.4	17.2	* .5	6.1	4.2	27.0
Congenital debility	110.6	107.6	113.2	124.0	110.2	98.2	* 5.6	* 10.8	13.8	12.0	9.4
Suicide	12.3	13.2	11.3	7.7	9.4	20.1	1.9	3.6	* 1.7	* 10.7	* 6.9
Legal electrocution	† 7.6	†	† 1.7	14.6	11.7	2.8	* 1.7	* 12.9	2.9	9.4	* 2.3
Other violent deaths (nonsuicidal)	107.8	104.9	88.9	109.3	122.0	113.7	16.0	* 20.4	* 12.7	8.3	* 8.8
Cause of death ill-defined or unknown	72.8	91.7	71.5	73.8	83.0	44.1	20.2	* 2.3	* 9.2	38.9	47.6
Total deaths, all causes:											
Nonresidents included	2,186	2,338	2,166	2,069	2,257	2,102	172	97	* 188	155	236
Nonresidents excluded	1,999	2,202	2,020	1,881	1,998	1,896	182	189	* 117	102	306

* Increase.

† The first legal electrocution under the Act of 1908, (by which all executions, for crime committed in any part of the State, are conducted in Richmond) was in October, 1908. The annual average given is for four years, 1908-1911.

All death rates in the above table are calculated from the official census of 1910 and the postcensal estimates of the United States Bureau of the Census for intercensal years.

At this point the 1911 death rate from certain causes as compared with that of the preceding four years is of interest. Typhoid fever, malarial fever, measles, scarlet fever, whooping cough, diphtheria and consumption are fully discussed further on in this report. They will therefore be referred to only briefly at this point.

Typhoid fever had the lowest death rate (17.8 per 100,000 inhabitants) ever recorded for our city. From having an average annual death rate of 77.8 per 100,000 for the twenty-six years preceding the reorganization of the Richmond Health Department (1880-1905, inclusive), th average annual rate for the five full years since reorganization (1907-1911, inclusive) has been reduced to 31.0 per 100,000. In only four years of the twenty-six was the death rate less than 50 per 100,000, while in no year of the past seven has it been so high as 50. The lowest death rate from typhoid fever ever recorded in Richmond prior to the reorganization of the Health Department was 43.5. The average rate, as above stated, for the past five years has been 31.0, and the average rate for the past three years has been 21.3. In other words, the *average* rate for the past three years has been less than half of the *lowest* rate ever recorded before.

Malarial fever formerly had a very high reported death rate in Richmond, 28.2 per 100,000 in 1907. The fuller statement made further on in this report as to how the rate has been lowered is of great interest. Briefly, Richmond never had, as a matter of fact, the high mortality from malaria with which she was credited. Incorrect statement of the cause of death (either deliberate or through careless diagnosis) was suspected, proved and corrected, with the result that the rate was reduced to 4.7 per 100,000 in 1910 and to .8 per 100,000 in 1911, or 1 death during the entire year. Nothing is more injuries to a community than the reputation of being "malarious." The importance of being able to publish to the world that fatal malaria is practically unknown in Richmond can scarcely be exaggerated.

Measles. The studies of this disease published in the 1910 report, which brought out a number of original points, led us to anticipate a death rate of about 6 or 7 per 100,000 for 1911, following the high rate (22.7) of 1910. As a matter of fact, the rate was 9.3, not far from our estimate. The reduction from the 1910 to the 1911 rate has no special significance, except as showing one additional year with a rate coming fairly true to the curve representing a more or less regular measles cycle.

Scarlet fever. This disease has had such a phenomenally low death rate in Richmond for many years, and especially for the past five years, that a comparison of the 1911 rate with that of the preceding four years has little value. There were only 3 deaths from this disease in 1911, giving a rate of 2.3 per 100,000. In 1910 there were no deaths from this disease. Our scarlet fever rate is wonderfully low, year after year.

Diphtheria. In connection with no disease, typhoid fever alone excepted, has there been such a great decline in the death rate, attributable to the direct work of the Health Department. There was the same number of deaths (13) from this disease in 1911 as in 1910, but the estimated increase in population made the rate .1 less per 100,000—10,2 in 1910, 10.1 in 1911. Although statistics showing the death rate from this disease in the "registration area" of the United States for 1911 are not available, it is safe to state that, judging from the figures of former years, our death rate from diphtheria is certainly not over half that of the country at large. The average death rate from diphtheria in Richmond for the past five years has been 9.1 per 100,000, against an average of 25.4 for the five years immediately preceding.

Whooping cough. The mortality from this disease was again high, being 39.5 per 100,000, against 36.7 in 1910. Whooping cough and measles are our most fatal contagious diseases of childhood. Like measles, whooping cough has a distinct cycle, quite different from the measles cycle, but characterized by years of high mortality alternating with years of low mortality. Up to the present time little or nothing is known of practical working methods for limiting the spread of this disease.

Influenza had a death rate of 20.1 per 100,000, against a rate of 25.8 in 1910, a decrease of 5.7 per 100,000. The rate was lower than that of any one of the preceding four years except 1909, when the rate was 12.9. As a matter of fact, the term influenza (or "grip") is so lightly used that it has little real significance. That this disease in its true form was certainly far less prevalent and virulent than in former years would seem to be fairly well proved from the very great decline in the death rate from pneumonia (discussed in the next paragraph), since grip is one of the chief causes of high death rate from pneumonia.

Pneumonia and other diseases of the respiratory system showed the greatest actual decrease between 1910 and 1911 and the greatest accumulated decrease between 1907 and 1911 of any disease. The decrease in the death rate from the group of respiratory diseases (consumption not included, in accordance with the International Classification) between 1907 and 1911 was 175.3 per 100,000. This decrease, equivalent to 1.75 per 1,000, is responsible for a large proportion of the decrease of 2.36 in the total death rate between those two years. A pneumonia death rate of 88.9 in 1911, against a rate of 200.2 in 1907 is a most remarkable reduction, and this reduction, with the exception of a slight increase from 1909 to 1910, has been progressive. The underlying causes of pneumonia are admittedly not fully understood. That insufficient fresh air is an important factor can scarcely be doubted, but that it is the whole story seems most improbable to any one who has studied the immense variation in the mortality of this disease from year to year. One factor which is undoubtedly responsible for at least a part of the decrease in the reported mortality from pneumonia and other respiratory diseases is that many of the deaths formerly reported in this group were in reality due to consumption. With every effort now made to do away with misstatements of this kind on death certificates (whether due to out-and-out falsification of returns or to incompetency or carelessness on the part of the attending physician), the natural result is that fewer deaths are attributed to this group of diseases, while the number of deaths reported as due to consumption is correspondingly increased. This has been repeatedly referred to and makes us feel that even a very great actual reduction in the death rate from consumption could be completely covered up in this manner.

Consumption. In spite of the fact just mentioned, consumption shows a decided decrease in its death rate—207.4, against 223.6 in 1910. With the exception of 1908, in which the rate was 194.3, the death rate from consumption in 1911 was the lowest on record.

Infantile diarrhea showed an increase in death rate from 132.1 per 100,000 to 151.6 per 100,000, having in 1911 the highest death rate for any of the five years. This is discussed fully elsewhere in this report. Briefly there were two chief causes. In the first place the death rate from this cause, while lower than last year up to the first of Setember, suddenly rose at that time, in consequence of what was unquestionably an epidemic of infantile diarrhea. In the second place, the stress which was laid on this disease during the past year resulted in the assigning to this cause a large number of deaths among infants which in former years would have been returned under other causes. This always results when special attention is called to any disease, particularly in such a disease as the one under discussion, since diarrhea is a very common symptom in infants dying from any cause. That this last explanation is well founded gains confirmation from the fact that the total number of deaths among infants under one year of age showed a most marked decrease, 534 in 1911, against 623 in 1910. All this is but part of a very important subject which is discussed at length further on in this report.

Suicide. The increase in the death rate from suicide in 1911 was marked, being 20.1 per 100,000, against 9.4 in 1910. The suicide rate was higher in 1911 than in any of the years given in the above table.

Cause of death ill defined or unknown. There was a great decrease in death rate from ill defined or unknown causes—44.1 per 100,000, against 83.1 in 1910. This must be taken into account when considering the death rate from all other causes, since it is self-evident that, with a lessening in the number of deaths not capable of satisfactory classification, these deaths naturally are distributed among definite diseases, increasing these to just that extent. Every effort is constantly being made to cut down as low as possible the number of deaths which have finally to be classified under cause of death ill defined or unknown, though it is idle to expect that the time will ever come when every death can be satisfactorily classified.

CHANGES IN THE FORCE.

In a footnote appended to the annual report for 1910 attention was directed to the death of Mr. W. T. Holdsworth, Inspector of Milk and Food Supplies, which occurred on February 18, 1911. Mr. Holdsworth had been connected with the Richmond Health Department for many years—as Assistant Inspector prior to July, 1906, and as Inspector from then until the time of his death. He was an officer of the highest integrity, scrupulous honesty and unswerving devotion to his duties. He enjoyed the fullest confidence and esteem of the Board of Health and of his associates.

On the death of Mr. Holdsworth, Mr. E. M. Noble, Assistant Food Inspector, was promoted to the position of Inspector, and Mr. C. J. B. Hare was elected to fill the vacancy thus created. Under these officers the work of food inspection has been well looked out for.

In my last annual report I devoted considerable space to discussing the resignation of our Medical Inspector, Dr. W. B. Foster, necessitated by his being unable, in spite of his devotion to the Richmond Health Department and to the interests of the City of Richmond, to continue longer in this office at the insignificant salary attached thereto. I deprecated the fact that, through the inability of the Board of Health to secure a proper salary in connection with this office, we had twice lost valuable medical inspectors and been forced to train new ones. In that report I mentioned the fact that Dr. Foster had been succeeded by Dr. C. C. Hudson, but the time had been too short (the change having taken place on November 1, 1910) for me to judge of the qualifications of the new incumbent.

It now gives me real pleasure to speak of the excellent work which Dr. Hudson has been doing in the past year. When Dr. Hudson was elected Medical Inspector he had paid special attention to the eruptive fevers, and this training served him in good stead from the start. But no matter how experienced a physician may be in the medical aspects of contagious diseases, there is little in the training of the practising physician which qualifies him as an epidemiologist, and this latter is the chief thing required of a medical inspector. It is inevitable, therefore, that frequent changes in this very important position must lessen the efficiency of the Health Department until the new man (no matter how expert as a practitioner) acquires the experience and the point of view demanded in public health work. I do not hesitate to express myself plainly on this subject now that I am able to speak in such high terms of Dr. Hudson's work for many months past.

Now that he has developed into an officer of such efficiency, it is most earnestly to be hoped that we will not be forced to lose him in turn and to train still a fourth new man as Medical Inspector, which we will certainly have to do before long unless the salary of the office is increased; for, as in the cases of Dr. Freeman and Dr. Foster, it cannot be doubted that opportunity will arise for him to secure a more lucrative position elsewhere.

Good public health officers are scarce. Their services are in constant demand throughout the country. The reputation of the Richmond Health Department is such that men trained with us in important work have no difficulty in securing positions in important public health work elsewhere. While this is in a way most gratifying, nevertheless Richmond has far more to gain by retaining for her own public health work men whom we have brought to a high point of efficiency than from the establishing of a reputation for conducting a good training school for health officers. I earnestly recommend that the Board of Health endeavor to have the Committee on Finance take from the table the ordinance which has been resting there for considerably over one year, providing for the increase of the salary of the Medical Inspector, and get action thereon by the City Council. The office of Medical Inspector is next in importance to that of the Chief Health Officer, and the present salary of $1,500.00 a year is absurdly small for a man of the ability demanded. I know of no greater real extravagance of which the city could be guilty than to lessen the efficiency of this most important office for the sake of saving a few hundred dollars a year. Only a very small estimate would have to be placed on the value of the lives of the people of Richmond to show that such a proposition is bound to be a losing one.

On September 11, Mr. John T. Gill, Sanitary Officer for the Fourth District, resigned, and his place was filled by the election of Mr. S. A. Hall.

Mr. Gill was one of our most valued officers, efficient and energetic in his work and possessing an unusual degree of tact in dealing with the public, a qualification so essential for a sanitary officer. Mr. Hall is making good progress as his successor.

On September 16, an ordinance went into effect providing for an additional sanitary officer (making five in all), and Mr. T. W. Mitchell was elected to fill the position. He was assigned to Washington Ward, formerly the City of Manchester, where he is doing excellent work. His being a practical plumber is a decided advantage, frequently saving considerable time in relieving the Plumbing Inspector from trips to this distant section of the city.

Mr. J. C. Boscher, Registrar of Vital Statistics, resigned on September 15. He had been with the Health Department since February 22, 1907. During his entire incumbency he had proved to be an officer of unusual ability and energy and was always devoted to the interests of the Department. Mr. E. L. Hasker, clerk to the Department, was elected Registrar on the resignation of Mr. Bosher, and is proving himself a most valuable officer.

Two of the District Physicians, Dr. Edward McCarthy and Dr. A. T. Smith, resigned during the year. Their places were filled by the election of Dr. J. W. Sloan and Dr. J. F. Hubbard, respectively. Although the District Physicians are officers of the Health Department, they are elected by the City Council in joint session, while all other officers of the Department are elected by the Board of Health. This is an anomaly which should be corrected.

TYPHOID FEVER.

In connection with no single disease has the work of the Richmond Health Department met with such signal success as in typhoid fever. The results which have been obtained since the reorganization of the Department in 1906 have been steadily better year by year, with the exception of there having been a higher death rate in 1908 than in 1907. The history of what has been accomplished in connection with typhoid fever cannot be repeated in full in each annual report, and those who wish a complete account of this work are referred to the annual reports of 1906-1910, inclusive, as complementary to what is given in the present report.

So numerous, however, are the requests for the history of our typhoid work that the main points will be briefly recapitulated, in order to make the present account fairly complete. Our work for the first year (July, 1906, to May, 1907) amounted to little, on account of our not having yet secured from the City Council the necessary means for investigating and following up any infectious diseases. Beginning May, 1907, the position of Medical Inspector having been established, every case of typhoid fever reported was immediately and carefully investigated and precautions were given in every case to prevent further spread of the disease. At this time the attention of sanitarians was directed almost exclusively to water supply and milk supply as the chief factors in the causation of typhoid fever. High prevalence and unusual outbreaks of this disease in any community were regarded as always meaning that some widely distributed food or drink, infected by a case, or cases, occurring outside of the city, brought the disease to the people.

For eight months the Chief Health Officer and the Medical Inspector studied carefully and continuously the data secured from our typhoid cases with the expectation of finding that our high summer typhoid would be traced to water supply, milk supply or some other infected food. But during these eight months little more was accomplished than to see, at first with considerable chagrin, that our efforts were fruitless in discovering any cause along the lines above indicated, but later with an altogether different feeling; for we began gradually to see that the reason why we had failed to find a true bill against our water, milk or other food supplies as a prominent factor in our typhoid problem was that these were not the chief underlying causes, and, indeed, so far as our typhoid fever from May 1, 1907, to January 1, 1908, was concerned, we became thoroughly convinced that these factors had not been operative at all.

SPREAD FROM LOCAL FOCI.

We came gradually to see that the main cause for our high death rate from typhoid fever was spread from cases in the city, rather than infection of large numbers of our people by material of any kind brought into the city. We found that, with numbers of cases of the disease in houses provided with only the crudest kind of privies, into which the discharges were emptied, it was inevitable that the disease should spread. We realized that this view was at that time quite heterodox, but we were nevertheless convinced of its correctness.

Just about the time that we had come to accept this explanation unexpected confirmation of our position came about, in the shape of a clean-out water-borne outbreak of typhoid fever, occurring in the months of January and February, 1908. The features of this outbreak were so utterly different from those of our higher summer rate, and they were, moreover, so unmistable, that we no longer entertained the shadow of a doubt that we were dealing with typhoid fever of an entirely different type from an epidemiological point of view.

Dr. A. W. Freeman (at that time our Medical Inspector) and I were so thoroughly convinced of the correctness of our views that we incorporated them in a paper which we presented at the meeting of the American Public Health Association held in Winnipeg in August, 1908.

PREVENTIVE MEASURES.

While we have never underestimated the importance of water and milk as factors in the causation of typhoid fever in communities where these supplies are not all that they should be, and while we have always felt unbounded admiration for those sanitarians who have called attention to these things, and who have been instrumental in saving thousands of lives by water purification and improvement of the milk supply, we became confident that, so far as Richmond was concerned, the main attack against typhoid fever had to be along other lines.

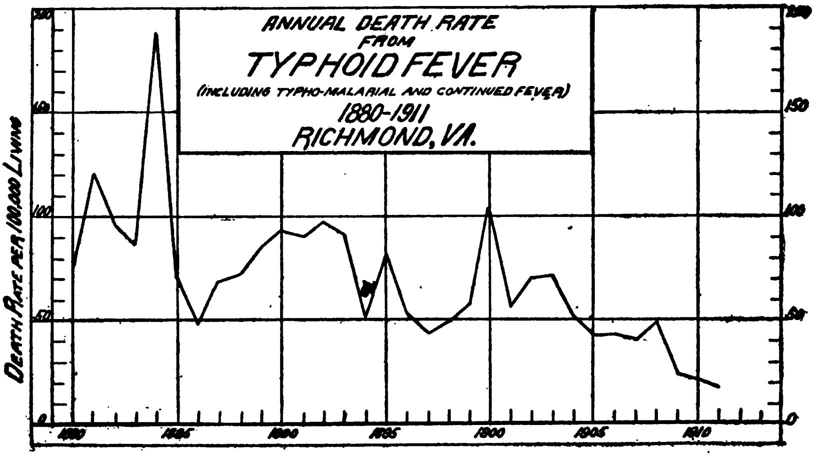
Our work, since the time that we fully formulated the above doctrine, has been in the direction of limiting the spread of typhoid fever from cases already in the city. In another part of the present report I discuss the question of privies in the city limits. We had some 3,500 of these in 1908, most of them in very bad condition. Every one of these was put in good order early in 1909. Our work in connection with all reported cases of typhoid fever was made even more thorough. Not only did the Medical Inspector give careful verbal directions concerning the means to be taken to prevent the spread of the disease (especially in connection with disinfection of the discharges of the patient), but printed directions were also left at each house. Free disinfectants were given by the Department in cases where the family could not afford to pay for them. Windows and doors of the sick room were screened. In brief, every avenue by which living bacilli of the disease could be conveyed from the victim to others was blocked as effectually as possible.

The result of our work is shown in the following table:

Table Showing the Annual Number of Deaths from Typhoid Fever (Including "Typho-Malarial Fever" and "Continued Fever"), and the Annual Death-Rate per 100,000, Richmond, Virginia, 1880-1910.

YEAR	Population U. S. Census Bureau	DEATHS FROM TYPHOID FEVER	
		Number of Deaths	Rate per 100,000
1880	63 600	49	77 0
1881	65,379	79	120.9
1882	67,158	64	95.4
1883	68.937	59	85.6
1884	70 716	133	188.1
1885	72,495	51	70.4
1886	74 274	36	48.5
1887	76.053	52	68 4
1888	77,832	56	72.0
1889	79,611	68	85 4
1890	81,388	76	93.4
1891	81,754	74	90.6
1892	82,120	80	97.4
1893	82,486	75	91.0
1894	82,852	42	50.7
1895	83,218	69	82 9
1896	83 584	45	53.8
1897	83 950	37	44.1
1898	84 316	42	49.9
1899	84,682	49	57.9
1900	85.164	88	103.3
1901	86,540	49	56.6
1902	87,916	63	71.6
1903	89 292	64	71 7
1094	90,668	47	51.8
1905	92 044	40	43 5
1906	93,421	41	43 9
1907	113 413	47	41.4
1908	114.790	57	49.7
1909	116 167	28	24.1
1910	127,914	28	21.9
1911	129,291	23	17.8

The death rates given in the above table are shown graphically in the following diagram:



Combining the figures in the above table, we get the following:

Period.	Average Annual Typhoid Death Rate per 100,000 Population.
1880-1884 (5 years)	113.4
1885-1889 (5 years)	68.9
1890-1894 (5 years)	84.6
1895-1899 (5 years)	57.7
1900-1904 (5 years)	71.0
1905-1909 (5 years)	40.5
1907-1911 (last 5 years)	31.0
1909-1911 (last 3 years)	21.3
1910-1911 (last 2 years)	19.8
1911 (last year)	17.8

The average annual death rate from typhoid fever for the entire period of 32 years was 69.4 per 100,000.

The average annual death rate for the 26 years (1880-1905) preceding reorganization of the Health Department was 77.8; of the 5 full years since reorganization, 31.0. The year 1906 is not included in either of these periods, as it was equally divided between the old and the new organizations.

The above tables show that the death rate from typhoid fever in Richmond in 1911 (17.8 per 100,000 inhabitants) was the lowest for any year on record; that the average rate for the past two years (19.8 per 100,000) was the lowest for any two years on record; that the average rate for the past three years (21.3 per 100,000) was the lowest for any three-year period, and that the average rate for the past five years (31.0 per 100,000) was the lowest for any five-year period.

When such remarkable and progressive lowering as this in the death rate from typhoid fever can be shown, and when this is coincident with the reorganization of the Health Department and the employment of energetic measures against this disease, there would seem to be no room for reasonable doubt as to the connection between these two sets of facts.

IMPORTED CASES AND DOUBTFUL DIAGNOSES.

Excellent as is the above showing, it would have been very much better but for the large number of cases contracted outside of Richmond. Besides this, the diagnosis in a considerable proportion of the cases was more or less doubtful. Of the 23 fatal cases of typhoid fever in Richmond in 1911, only 15 were contracted in Richmond. Of these 15, the diagnosis was by no means certain in 8 (being almost certainly not typhoid in 5 cases), thus leaving only 7 deaths which were certainly due to typhoid fever contracted in the city. A brief history of the 23 fatal cases of typhoid fever in Richmond in 1911 is given below, in order to show clearly that the claims just made are by no means vague or general in character but that they are founded upon accurate information in every instance.

Table Giving a Brief History of the Twenty-three (23) *Deaths from Typhoid Fever in the City of Richmond, Virginia, During* 1911, *With Special Reference to* (1) *Where Disease was Contracted,* (2) *Whether Resident or Nonresident of Richmond, and* (3) *Whether Diagnosis was Positive or Doubtful.*

CASES CONTRACTED IN CITY

1. *(Resident) 4-147, white male, 22 yrs., died Jan. 21. "Thrombosis of cavernous sinus. Typhoid." Operation. No Widal; some doubt as to diagnosis.*
3. (Resident) 25-1156, white female, 17 yrs., died June 8.
4. (Resident) 29-1180, white male, 19 yrs., died June 11. Lived in city but worked in country every day. Probability 50 per cent. of being contracted in city. Offset by case 19.
6. *(Resident) 47-1383, white male, 49 yrs., died July 4. Ill 2 mos. before taking to bed on May 26. First thought to have bile-tract infection. Endocarditis given as contributory cause. Diagnosis doubtful.*
9. *(Resident) 89-1539, colored female, 16 yrs., died July 22. Ill since June 19. Treated 4 wks. with no remission of fever. Another physician called; diagnosed meningitis, but stated typhoid on death certificate on account of previous diagnosis.*
10. *(Resident) 97-1606. white male, 3 yrs., died July 30. First physician found diarrhea but no fever. Child unconscious when another physician called 6 days later; lived 10 days. "Typhoid fever and cerebro-spinal meningitis." Diagnosis extremely doubtful.*
11. (Resident) 100-1671, white, female, 21 yrs., died Aug. 6.
12. *(Resident) 107-1672, colored female, 21 yrs., died Aug. 6. Physician stated that he was not sure if death was due to ruptured pus tubes or to typhoid fever but thought it probably latter.*
16. (Resident) 145-1871, colored female, 16 yrs., died Sep. 5.
17. (Resident) 161-1987, white female, 23 yrs., died Sep. 23.
18. (Resident) 182-2079, white male, 38 yrs., died Oct. 6. Had been visiting in country on Saturdays and Sundays; carried as 75 per cent. probability of being contracted in city, but put in this column.
20. *(Resident) 223-2389, colored female 25 yrs., died Nov. 14. Physician uncertain as to diagnosis between tuberculosis and typhoid; could not get sputum for examination.*
21. *(Resident) 237-2447, white female, 25 yrs., died Nov. 24. Taken ill Nov. 16, diagnosis, grip. Bloody sputum, with temp. 106 degrees from first, complete consolidation of right and part of left lung. Two Widals negative, as was also a blood culture. Almost certainly pneumonia and not typhoid.*
22. (Nonresident, in city 6 mos.) 251-2605, white female, 21 yrs., died Dec. 16.
23. *(Resident) 249-2638, white male, 29 yrs., died Dec. 21. "Typhoid fever, (contributory) pneumonia." Had pneumonia from first, with chill and bloody sputum. Much doubt as to typhoid fever.*

CASES CONTRACTED OUT OF CITY.

2. (Resident) 8-605, white male, 25 yrs., died March 25. Although home some nights, gave history of several cases on C. and O. Ry., where he worked.
5. *(Resident) 49-1209, colored male, 27 yrs., died June 13. Taken ill 3 days after coming from country. Took street car to City Home on night before death. Only superficial examination made; died next morning; death reported "presumedly typhoid fever," but little real ground for diagnosis.*
7. (Nonresident) 61-1396, white male, 23 yrs., died July 5. Had relapse after coming from North Carolina, where he had been treated for malaria.
8. (Nonresident) 74-1518, white female, 3 yrs., died July 18. Physician stated that he brought this child to city "so that she could die more comfortably."
13. (Nonresident) 149-1824, colored female, 21 yrs., died Aug. 28. Brought to city four days before death.
14. (Resident) 141-1854, white male, 31 yrs., died Sep. 3. Contracted disease while away on vacation.
15. *(Nonresident) 143-1870, white female, 27 yrs., died Sep. 5. Operated on for pus tubes Aug. 5. Developed fever 4 days later. No Widal, no leucocyte count. Diagnosis of typhoid extremely doubtful.*
19. *(Nonresident) 211-2193, colored female, 6 yrs., died Oct. 21. Had been in city 2 wks. when taken to bed. Probability 50 per cent. of being contracted out of city. Offset by case 4. Death reported as due to entero-colitis, but cause changed on death certificate by 'phone, on receipt of report of positive Widal from City Bacteriologist.*

Explanatory Note.—The first figure preceding each case in the above table, is the consecutive number of each of the 23 fatal cases of typhoid fever in Richmond during 1911, according to the date of death. The first part of the second (hyphenated) figure refers to the serial number of each case in the records which the Richmond Health Department keeps of all cases of typhoid fever in the city, while the second part of this figure is the registered number of the certificate of death in each case. These latter figures are given for our own use only, enabling us to refer immediately to the full records of these cases and to the certificates of death if it is desired to make further studies of these cases at any time. Cases printed in italics are those in which the diagnosis of typhoid fever was more or less doubtful. Words in quotation are taken from statements made by the attending physicians on the death certificates. Decedents who had been in Richmond six months or less are classified as nonresidents.

The fatal cases of typhoid fever occurring in Richmond during 1911, shown in detail in the above table, may be classified as follows:

Table Giving Summary of Typhoid Deaths in Richmond During 1911, Classified According to (1) Where Disease Was Contracted, (2) Whether Resident or Nonresident of Richmond and (3) Whether Diagnosis Was Positive or Doubtful.

	CONTRACTED IN RICHMOND			CONTRACTED OUT OF RICHMOND			ALL CASES		
	Resident	Nonresident	Total	Resident	Nonresident	Total	Resident	Nonresident	Total
All Cases	14	1	15	3	5	8	17	6	23
Diagnosis positive .	6	1	7	2	3	5	8	4	12
Diagnosis doubtful .	8	0	8	1	2	3	9	2	11

Reducing the most important of the above figures to death rate per 100,000 population, we get the following:

	Number of deaths.	Death rate per 100,000.
All deaths from typhoid fever in Richmond during 1911......	23	17.8
Excluding nonresidents who contracted the disease outside of Richmond	18	13.9
Excluding all cases contracted outside of Richmond..........	15	11.6
Excluding all cases contracted outside of Richmond and all cases contracted in Richmond in which the diagnosis was doubtful	7	5.4

While the death rate calculated from the total number of decedents (17.8 per 100,000) is the only one used in comparing the death rate from typhoid fever in Richmond in 1911 with that of other cities, nevertheless there can be no question but that it would be much fairer to exclude deaths among cases contracted outside of the city, certainly where the decedents, in addition to not having contracted the disease in the city, were nonresidents. No work of any city health department can influence the number of deaths among persons infected elsewhere. As shown above, our typhoid death rate in 1911 among cases contracted in the city reached the very low figure of 11.6 per 100,000.

In the matter of more correct diagnosis our Medical Inspector and our City Bacteriologist did excellent work last year. For an account of this I refer you to the report of the Medical Inspector. Sputum examinations in four cases reported as typhoid fever showed the disease to be tuberculosis. In one of the fatal cases, a blood culture which the attending physician was persuaded to have made by us showed the presence of the pneumococcus only, and the diagnosis was changed to pneumonia on the basis of this result. I cannot too highly commend the careful work which was done in this connection.

TYPHOID CASES IN 1911.

Not only the number of deaths from typhoid fever but also the number of cases was the lowest ever recorded in Richmond since complete records of all cases have been secured. There were 251 cases of this disease reported during the year, of which 83 (or 33.1 per cent. of all) were contracted outside of the city, leaving only 168 cases contracted in Richmond. In 1910, the next lowest year, out of a total of 263 cases, 54 (or 20.5 per cent. of all) were contracted outside of Richmond, leaving 209 contracted in the city. There were thus 41 fewer cases of typhoid fever contracted in Richmond last year (or 19.6 per cent. fewer) than in any year on record.

There are a number of other points in connection with typhoid fever in Richmond last year which are of immense interest. Space, however, will not admit of my discussing these. Many of them are admirably handled in the report of the Medical Inspector, and to this I refer you for much additional information of interest and value.

MALARIAL FEVER.

On the face of the reported mortality figures, the lowering of the death rate from malarial fever in the past four years might well be thought to be the most notable accomplishment of the Richmond Health Department since its reorganization. The number of deaths and the death rate from malarial fever in Richmond for the past eight years are given below:

YEAR	DEATHS FROM MALARIAL FEVER	
	Number of Deaths	Rate per 100,000
1904	17	18.8
1905	28	30.4
1906	14	15.0
1907	82	28.2
1908	7	6.1
1909	9	7.7
1910	6	4.7
1911	1	.8

The above table shows an average of 2.31 deaths per 100,000 inhabitants from malarial fever for the four years, 1904-1907, inclusive, and an average of 4.8 for the past four years, 1908-1911, inclusive.

The number of deaths from malarial fever in 1907 was stated to be 23 in the annual report of the Richmond Health Department for that year, against 32 as given in the above table. In 9 death certificates received during 1907 malarial fever and some other serious illness were given as the joint cause of death. These were classified by our office under the other cause given on the certificate since we knew, as will be pointed out, the rarity of fatal malaria in our climate. The United States Bureau of the Census, however, assigned these 9 deaths to malarial fever, making a total of 32 deaths, and we have changed our classification to conform thereto.

It was the high reported death rate from malarial fever in 1907 (32 deaths, equivalent to a rate of 28.2 per 100,000) that led me to investigate the reliability of the returns. I found that out of the 32 deaths assigned to this cause, 11 had been reported by one physician, 6 by another and 5 by a third. With over two hundred physicians practising in Richmond at that time, one had thus reported 34 per cent. (or over one-third) of all the deaths from malaria; two had reported 53 per cent. (or over one-half) of all, and three had reported 69 per cent. (or over two-thirds) of all. This, of course, showed the utter unreliability of the returns.

In order to throw further light on the matter, a letter was addressed to eight prominent practitioners of the city, asking each how many fatal cases of malarial fever he had had during the entire course of his practise in Richmond. Seven of them replied that they had never had a death from malaria in Richmond and the eighth had had one death, the disease in this instance having been contracted in a Southern State.

Armed with the above facts, the physicians who had reported so many deaths from malaria were interviewed. They were shown that it was impossible that any three doctors should have had 22 deaths from malaria in a single year while eight other doctors, with very large practises should have had only one death from this disease during their entire experience, averaging at least fifteen years—the proportion being thus 880 to 1. They were respectfully requested to bear these facts in mind and to avoid using the term malaria to cover those cases of fever in which they had simply failed to find any other cause. Since that time we always get further information on every death certificate on which malarial fever is stated as the cause of death.

MOSQUITOES AND MALARIA.

Considerable work has been done by the Richmond Health Department and also by the Departments of Streets and Street Cleaning in the direction of extermination of mosquitoes. This has almost certainly lessened the amount of malaria in Richmond but has probably not greatly influenced the number of deaths from this disease, malaria of a fatal type being rarely contracted here. Cases of this disease contracted in Richmond always yield to quinine unless badly neglected at the start.

It is believed that the remarkable falling off in the number of deaths reported as due to malarial fever is chiefly due to more accurate diagnosis on the part of the attending physicians. In 1910 there were 6 deaths assigned to malaria. It is probable that, as a matter of fact, only 1 of them was really due to this cause. In the year just closed, the number of deaths was reduced to 1, which is equivalent to a death rate of .8 per 100,000. In the reports of the United States Bureau of the Census, Division of Vital Statistics, rates of over 10 per 100,000 from malarial fever are printed in black-face type. Prior to 1908 Richmond was thus regularly blacklisted every year in the Government reports. For the past four years she has been out of this bad company, and, unless our deductions given above are wrong, she has bid it farewell forever.

This is one of the many services which the Richmond Health Department has rendered the city. Surely Richmond appears to much better advantage in the eyes of the world with a death rate of 4.8 per 100,000 from malaria (the average for the past four years) than with a rate of 23.1, the average for the four years preceding. A reputation of being "malarious" is a severe handicap to any city. Practical freedom from any deaths from this cause, as during the year just past, cannot but be a financial asset to Richmond. This is but a single illustration of the many ways in which a health department is capable of advancing the interests of a city.

The commonly accepted idea that deaths loosely and incorrectly attributed to malaria are usually due in fact to typhoid fever is not borne out by our experience here in Richmond. The cases in which we have doubted the accuracy of the diagnosis and looked into the facts have most frequently been tuberculosis, with suppurative conditions of an obscure nature (that is, obscure to the careless practitioner) as a close second. While deaths reported as due to malaria have been practically eliminated, the death rate from typhoid fever has also been remarkably reduced, as shown elsewhere in this and in previous reports.

DIPHTHERIA.

There were 268 cases of diphtheria reported to the Health Department during 1911, with 13 deaths, giving a mortality of 10.1 per 100,000 inhabitants and a case fatality of 4.9 per cent. The number of cases was 8 greater than in 1910 and the number of deaths was the same, but the increase in population made the rate slightly lower—10.2 in 1910, 10.1 in 1911. The number of deaths and the death rate from diphtheria for each year from 1875 to 1911, inclusive, are given in the following table:

Table Showing the Annual Number of Deaths from Diphtheria (including Croup), and the Annual Death Rate per 100,000 in the City of Richmond, Virginia, from 1875 to 1911.

YEAR	Population—U. S. Census Bureau	DEATHS FROM DIPHTHERIA		YEAR	Population—U. S. Census Bureau	DEATHS FROM DIPHTHERIA	
		Number of Deaths	Death Rate per 100,000			Number of Deaths	Death Rate per 100,000
1875	57,818	81	54.1	1895	83 218	20	24.0
1876	58 574	45	76.8	1896	83,584	19	22.7
1877	59,830	21	35.1	1897	83,950	17	20.2
1878	61,086	36	58.9	1898	84 316	13	15.4
1879	62,342	27	43.3	1899	84,682	5	5.9
1880	63,600	16	25.2	1900	85,164	6	7.0
1881	65,379	28	42.8	1901	86,540	10	11.6
1882	67,158	29	43.2	1902	87,916	38	43.2
1883	68 937	37	53.7	1903	89,292	44	49.3
1884	70,716	15	21.2	1904	90,668	10	11.0
1885	72,494	25	34.5	1905	92,044	12	13.0
1886	74,274	59	79.4	1906	93 421	10	10.7
1887	76,053	74	97.3	1907	113,413	16	14 1
1888	77,832	26	33 4	1908	114,790	4	3.5
1889	79,611	35	44.0	1909	116,167	9	7.7
1890	81,388	79	97.0	1910	127,914	13	10.2
1891	81,754	145	177.4	1911	129,291	13	10.1
1892	82,020	10	12.2				
1893	82 486	10	12 1				
1894	82,852	8	9.7				

Combining the above rates in five-year periods, we get the following:

Period.	Average Annual Death Rate from Diphtheria per 100,000.
1875-1879 (5 years)	53.7
1880-1884 (5 years)	37.2
1885-1889 (5 years)	57.2
1890-1894 (5 years)	61.7
1895-1899 (5 years)	17.6
1900-1904 (5 years)	24.4
1905-1909 (5 years)	9.8
1910-1911 (2 years)	10.2
1907-1911 (last 5 years)	9.1

The average death rate for the entire period of 37 years was 36.0 per 100,000.

The average annual death rate from diphtheria from 1875 to 1894 (20 years) was 52.6 per 100,000. These were years before antitoxin was known, or before it was in general use.

The average annual death rate from 1895 to 1905 (11 years) was 20.3 per 100,000. These were years during which antitoxin was in general use—though not as general as later on—but before the reorganization of the Richmond Health Department.

The average annual death rate from 1906 to 1911 (6 years) was 9.4 per 100,000. These years followed the reorganization of the Richmond Health Department. Since diphtheria in Richmond is almost altogether a disease of the last four months of the year, the year 1906 is considered as under the new organization, which went into effect in July, 1906.

Although there were more deaths from diphtheria in 1910 and 1911 than in the two preceding years, the work done by the Department in connection with this disease was better than ever before. Examination of the first of the above tables shows that diphtheria fluctuates greatly in its death rate from year to year. We feel confident that only our work saved the last two years from having a much higher mortality. This we believe because of the great proportion of severe cases in which we know positively that our work saved lives, and because of indisputable evidence of the instances in which our work checked the spread of the disease.

The death rate from diphtheria for the registration cities of the United States was 24.2 in 1909 and 25.3 in 1910. Richmond's rate was 7.7 and 10.2 in these two years, respectively. In 1909 there were only three cities of the 50 having a population of 100,000 or over that had a lower diphtheria death rate than Richmond, and only eight of them had a lower rate in 1910. The 1911 rate for the registration area is not yet available.

LARYNGEAL DIPHTHERIA.

The work of health departments is confined almost entirely to the prevention of disease. In so far as the supervision of actual cases of disease of any kind is concerned, when this is undertaken at all it is usually with the sole idea of preventing further spread of the trouble. In connection with laryngeal diphtheria, however, the most advanced health departments everywhere recognize the necessity of supervising to a greater or less extent actual cases of the disease as a means of saving lives which would otherwise unquestionably be sacrificed,

Laryngeal diphtheria is a disease which formerly struck terror to the hearts of all; for not only did it prove fatal at least eighty per cent. of the time, but the terrible suffering of a child dying of strangulation added to the horrors of a situation for which there was no means of relief. With the advent of antitoxin matters were at once improved, for, administered promptly, this remedy proved the means of saving a large proportion of all cases of laryngeal diphtheria. Frequently, however, antitoxin alone is not sufficient relief being demanded to overcome the narrowing of the windpipe until the process of cure is well under way. This, too, can be done by modern methods. The operation of intubation, involving no cutting and performed in a fraction of a minute by one who is expert, is capable in skillful hands, and with antitoxin administered in large doses at the same time, of saving eighty per cent. of cases of laryngeal diphtheria, thus reversing the former figures.

But in these cases there is no time to lose. When a case of laryngeal diphtheria is reported to the Richmond Health Department, the Medical Inspector drops everything else and goes to the house immediately. In no small proportion of the cases he finds that the attending physician has failed to appreciate the gravity of the case and the necessity of immediate action. If the case is found to be a severe one, the Medical Inspector at once seeks to get in communication with the attending physician and has him return to the house with him. It has been found that many of our physicians are unacquainted with the possibilities of intubation and have, up to the time that the case is seen with the Medical Inspector, felt that there was nothing more to do. In the severest of these cases the Medical Inspector generally succeeds in getting the consent of the attending physician to calling in our diphtheria consultant. When this is done we always feel reasonably safe, as the record of the cases thus handled is a remarkable one.

Having myself been interne at the Willard Parker Hospital, New York, where many hundreds of cases of diphtheria are treated every year, and where intubation is a matter of almost daily occurrence, I am able to speak with confidence of the splendid work which Dr. Lipscomb has done in these cases here in Richmond. In 1907 we first began to get him in consultation in cases of laryngeal diphtheria. For two years he saw these cases without any compensation. Later the Board of Health, entirely without solicitation on the part of Dr. Lipscomb, agreed on an insignificant fee for these cases, and last year the fee, though still small for the character of the work, was increased.

I have asked Dr. Lipscomb to submit a report of the work which he has done during 1911 and also a summary of the work from 1907 to 1910. His report is herewith submitted for your consideration. It shows that during the past five years he has seen in consultation for the Health Department 71 cases of laryngeal diphtheria. Of these only 7 have died, or 9.9 per cent. Intubation has been performed in 55 cases, of which 6 died, or 10.9 per cent. In 15 cases intubation was not performed. All of these recovered except 1 in which congenital stenosis of the larynx made intubation impossible. Tracheotomy was performed in this case, but death followed. The fatality among these nonintubated cases was 6.7 per cent.

When it is recalled that the cases seen for us by Dr. Lipscomb were all exceedingly ill, many of them being in such condition that they would inevitably have died in a few hours if not relieved, and that these cases were all treated in their own homes—many of them in homes of the poorest possible character—without trained nurses except in one or two instances, the results are almost incredibly good. I do not know of a diphtheria hospital, with all the advantages enjoyed by such institutions, which can show as good results.

Excellent as are the results shown for the entire series of cases, the figures for 1911 are especially good, 32 cases having been treated with only 2 deaths, or 6.3 per cent. Of the 23 cases intubated in 1911, only 1 died, or 4.4 per cent. while the 1 death among the 9 nonintubated cases was the case mentioned above as suffering from congenital stenosis (or stricture) of the larynx.

I can state with the utmost confidence that Dr. Lipscomb's work has resulted in the saving of very many lives in Richmond in the past five years. Indeed, our exceedingly low death rate from diphtheria is due in great measure to his work. As stated above, the general function of a health department is to prevent illness, not to cure, but when, by working along the lines just described, there is the opportunity to save lives which would otherwise be certainly sacrificed, we would be criminally negligent if we failed to do so.

SCARLET FEVER.

There were 182 cases of scarlet fever reported to the Health Department during 1911, with 3 deaths, giving a death rate from this disease of 2.3 per 100,000 inhabitants and a case fatality of 1.6 per cent. While the number of deaths was very low, it was nevertheless higher than in any year since 1906. In 1907 and 1910 there was no death from scarlet fever in Richmond, and there was 1 death from this disease in each of the years 1908 and 1909. In 1906 the number of deaths was the same (3) as in 1911, but the smaller population in 1906 made the death rate that year 3.2 against 2.3 in 1911.

The number of deaths and the death rate from scarlet fever in Richmond for the past forty years are given in the following table:

Table Showing the Annual Number of Deaths from Scarlet Fever and the Annual Death Rate per 100,000 *in the City of Richmond, Virginia, from* 1872 *to* 1911.

YEAR	Population—U. S. Census Bureau	DEATHS FROM SCARLET FEVER	
		Number of Deaths	Death Rate Per 100,000
1872	53,500	2	3.7
1873	54.806	4	7.3
1874	56,062	3	5.3
1875	57.318	1	1.7
1876	58,574	6	10.2
1877	59,830	27	45.1
1878	61,086	105	171.9
1879	63 342	98	157.2
1880	63,600	4	6 3
1881	65,379	0	0.0
1882	67.158	8	11.9
1883	68,937	2	2.9
1884	70,716	6	8 5
1885	72,495	8	11.0
1886	74 274	6	8.1
1887	76 053	1	1.3
1888	77 832	1	1.3
1889	79,611	1	1.3
1890	81.388	1	1.2
1891	81.754	3	3.7
1892	82 120	1	1.2
1893	82 486	1	1.2
1894	82,852	1	1.2
1895	83,218	3	3.6
1896	83 584	3	3.6
1897	83 950	1	1.2
1898	84 316	2	2.4
1899	84,682	2	2.4
1900	85,164	3	3.5
1901	86,540	0	0.0
1902	87,916	2	2 3
1903	89,292	3	3.4
1904	90,668	2	2.2
1905	92.044	1	1.1
1906	93,421	3	3.2
1907	113,413	0	0.0
1908	114,790	1	.9
1909	116 167	1	.9
1910	127 914	0	0.0
1911	129 291	3	2 3

Combining the figures in the above table, we get the following average annual number of deaths and average annual death rate from scarlet fever in Richmond for five-year periods.

PERIOD	Average Annual Mortality From Scarlet Fever	
	Number of Deaths	Rate Per 100,000
1872-1874 (3 years)	3.0	5.4
1875-1879 (5 years)	47.4	77.2
1880-1884 (5 years)	4.0	5.9
1885-1889 (5 years)	3.4	4.6
1890-1894 (5 years)	1.4	1.7
1895-1899 (5 years)	2.2	2.6
1900-1904 (5 years)	2.0	2.3
1905-1909 (5 years)	1.2	1.2
1910-1911 (2 years)	1.5	1.2
1907-1911 (last 5 years)	1.0	.8
Entire period of 40 years	8.0	12.4

Inspection of the first of the above tables shows that the forty-year period naturally divides itself into three periods of very different mortality from scarlet fever, as shown in the following table:

PERIOD	Average Annual Mortality From Scarlet Fever	
	Number of Deaths	Rate Per 100,000
1872-1879 (8 years)	30.8	50.3
1880-1886 (7 years)	4.9	7.0
1887-1911 (25 years)	1.5	1.8

As I have previously noted, the scarlet fever record of Richmond is a most remarkable one. In no year since 1879 (that is, for the past 32 years) has there been over 8 deaths from scarlet fever, and in no year since 1886 (that is, for the past 25 years) has there been over 3 deaths, the highest death rate during this last period of 25 years having been 3.7 per 100,000.

The full significance of these figures becomes apparent when they are compared with the death rate from scarlet fever in the "registration area" of the United States, which area embraced 58.3 per cent. of the total population of the country in 1910.

Death Rate from Scarlet Fever per 100,000 Population	Richmond	Registration Area
Annual average, 1900–1909	1.8	10.6
1910	2.8	11.6

If the Richmond death rate from scarlet fever were compared with that of registration cities instead of with that of the entire registration area (which includes a large per cent. of rural population), the contrast would be even more marked, but the former figures are not yet available.

Had the death rate from scarlet fever in Richmond from 1900 to 1910, inclusive, been that of the registration area, there would have been 117 deaths in these eleven years. As a matter of fact, there were only 16 deaths in that time. The scarlet fever death rate for the registration area in 1911 is not yet available. If it was 11.0 (and this is a fair assumption, since it was 11.9 in 1908, 11.4 in 1909 and 11.6 in 1910), this would mean that Richmond would have had 121 deaths from scarlet fever in the past twelve years if its death rate had been that of the registration area, against the 19 which actually occurred here.

According to Mortality Statistics: 1910 (Bulletin 109 of the United States Bureau of Census) *Richmond was the only one of the fifty cities in the United States of over* 100,000 *population which had no death from scarlet fever in* 1910, *and its death rate from this disease in* 1909 *was the lowest of any city in this class.*

I can offer no explanation of Richmond's almost phenomenal immunity from fatal scarlet fever for the past twenty-five years. During the past year conditions arose which might well have developed into a most serious scarlet fever situation. I refer you to the report of our Medical Inspector for a full statement of the difficulties which we experienced in connection with unrecognized cases of this disease. For quite a while towards the end of the year not a week passed without the discovery by him of several cases which had not been recognized by the attending physicians and which in consequence, had not been reported to the Health Department. How many cases of this kind there may have been in addition to those located by the Medical Inspector it is impossible to say.

Some of these unrecognized cases were by no means mild, although most of them were. A number of them were seen by specialists in children's diseases without the true nature of the ailment being recognized. After three cases of this kind were discovered I had notices of the state of affairs published in all four of our daily papers. Later I sent a circular letter to every physician in the city. In both of these communications I called attention to the facts above mentioned and to the necessity, under existing circumstances, of considering the question of scarlet fever in the case of every child with sore throat and fever. In most of the cases in which the nature of the trouble was not recognized it was admitted by the attending physician that he had not made a point of examining the trunk and limbs, and hence, seeing no eruption on the face and hands, scarlet fever was not thought of. Some few physicians profited by the notices from the Department, but, for the most part, they did little good, as, in spite of them, the Medical Inspector continued to find these unrecognized cases. In every one of them the attending physician admitted the correctness of the diagnosis when once his attention was directed to it, and, unfortunately, the diagnosis made by the Medical Inspector was confirmed in almost every instance by the development of other cases, from exposure which had occurred before the Medical Inspector saw the case.

I cannot too highly commend the work of our Medical Inspector in connection with these cases or his tact in dealing with the delicate situations to which they naturally gave rise. In spite of his excellent work, however, we were unquestionably saved from a serious state of affairs only by the seeming immunity from severe scarlet fever which Richmond has enjoyed for the past quarter of a century. This constitutes no excuse, however, for carelessness on the part of physicians or for any relaxation of our vigilance, as scarlet fever is never a disease to be trifled with, and one has but to look at the first of the above scarlet fever tables to see the terrible havoc which this disease played in Richmond in 1877, 1878 and 1879.

The failure of so many of our physicians to recognize and report cases of scarlet fever coming under their care last year can be explained only by the fact that there has been so little of this disease in Richmond in recent years, and that little of so mild a type, that our doctors lack experience with it; for it cannot be disputed that the physicians of Richmond possess professional skill far above the average, while their co-operation with the Health Department is, I believe, more cordial and intelligent than can be found anywhere else in this country.

MEASLES.

There were 423 cases of measles reported to the Health Department during 1911, and 12 deaths, equivalent to a death rate of 9.3 per 100,000 inhabitants and a case fatality of 2.3 per cent. The number of deaths was rather in excess of what had been expected from a continuance of the study which had enabled us to predict, and to a certain extent prepare for, the epidemic of 1910. In a general way the correspondence between our prediction and the actual number of deaths from measles in 1911 was close, the year being, as anticipated, one of neither very high nor very low mortality from this disease.

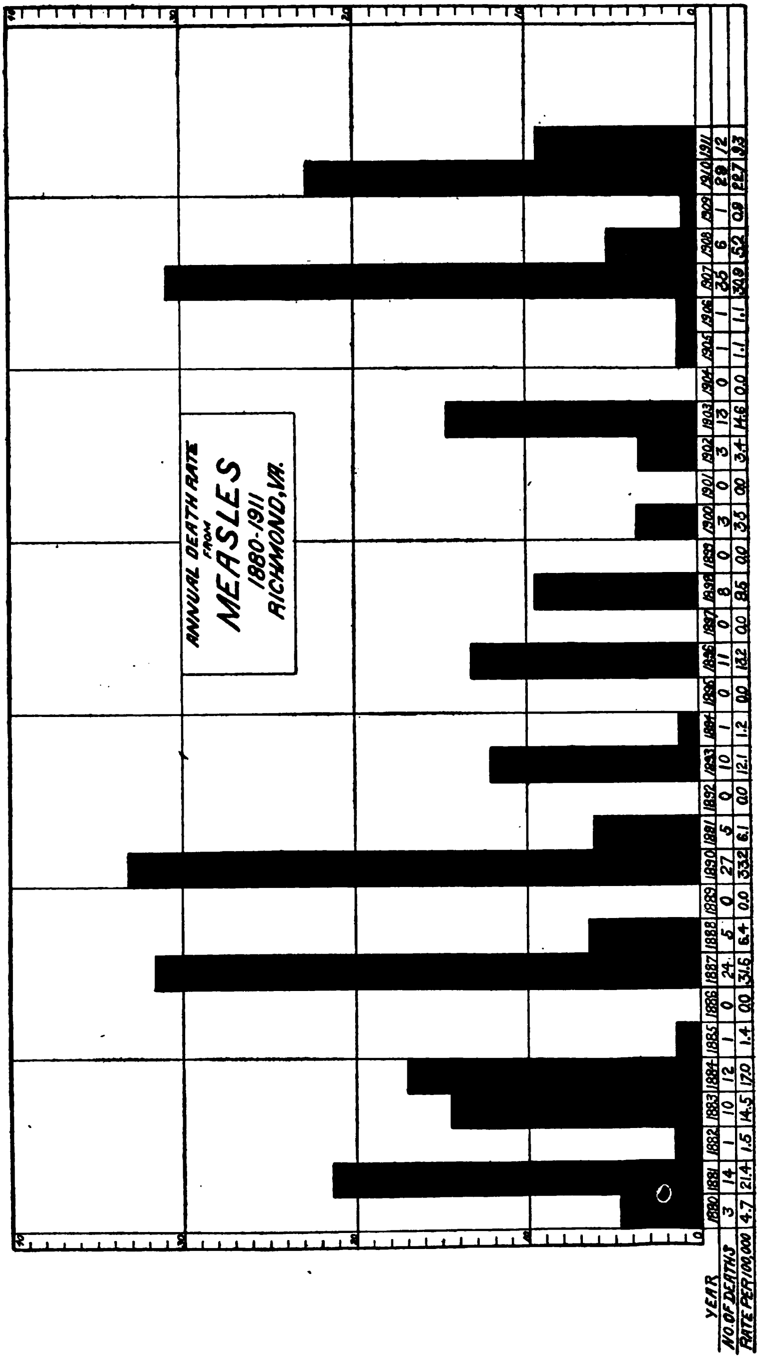
It seems exceedingly difficult to get the people, and even the doctors, to realize that in Richmond measles, as shown by the figures for the past ten years, is far more important as a cause of death than either diphtheria or scarlet fever. In fact the average annual death rate from measles for the past five years has been 38 per cent. higher than for diphtheria and scarlet fever combined.

The mortality from measles in Richmond since 1880 is shown in the following table:

Table Showing the Annual Number of Deaths and the Annual Death Rate from Measles, Richmond, Virginia, 1880-1911.

YEAR	Population U. S. Census Bureau	No. of Deaths	Annual Death Rate per 100 000	YEAR	Population U. S. Censns Bureau	No. of Deaths	Annual Death Rate per 100,000
1880	63,600	3	4.7	1885	83,218	0	0.0
1881	65,379	14	21.4	1896	83,584	11	13.2
1882	67,158	1	1.5	1897	83,950	0	0.0
1883	68 937	10	14.5	1898	84,316	8	9.5
1884	70,716	12	17.0	1899	84,682	0	0.0
1885	72 495	1	1.4	1900	85,164	3	3.5
1886	74 274	0	0.0	1901	86 540	0	0.0
1887	76,053	24	31 6	1902	87 916	3	3.4
1888	77 832	5	6.4	1903	89,292	13	14.6
1889	79.6·1	0	0.0	1904	90,668	0	0.0
1890	81,388	27	33.2	1905	92,044	1	1.1
1891	81,754	5	6 1	1906	93,421	1	1.1
1892	82 120	0	0.0	1907	113.413	35	30.9
1893	82 486	10	12.1	1908	114 740	6	5 2
1894	82 852	1	1.2	1909	116,167	1	.9
				1910	127.914	29	22 7
				1911	129 291	12	9 3

The death rates given in the above table are shown graphically in the following diagram:



YEAR	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1881	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
NO. OF DEATHS	3	14	1	10	12	1	0	24	5	0	27	5	0	10	1	0	11	0	8	0	3	0	3	13	0	1	1	35	6	1	29	12
RATE PER 100,000	4.7	21.4	1.5	14.5	17.0	1.4	0.0	31.6	6.4	0.0	33.2	6.1	0.0	12.1	1.2	0.0	13.2	0.0	9.5	0.0	3.5	0.0	3.4	14.6	0.0	1.1	1.1	30.9	5.2	0.9	22.7	9.3

The description given in last year's annual report of the manner in which the measles epidemic of 1910 was predicted and prepared for by the Richmond Health Department has attracted considerable attention. A recent Government report* refers to this at length, and requests for our literature on the subject have come from health officers and vital statisticians in many parts of the country.

Following the same method, we are led to predict confidently that 1912 will be decidedly an off year for measles. We are fairly safe in being even more definite than this and predicting that the number of deaths from measles in 1912 will not exceed two or three.

WHOOPING COUGH.

Whooping cough is responsible for more deaths than any other acute contagious disease in the city of Richmond, measles being next in importance. While measles has been responsible for more deaths than scarlet fever and diphtheria combined, whooping cough has been responsible for more deaths than scarlet fever, diphtheria and measles combined. This is shown in the following table:

Table Showing the Relative Importance of Diphtheria, Scarlet Fever, Measles, and Whooping Cough in Richmond, as Shown by the Average Annual Number of Deaths and the Average Death Rate from Each of These Diseases from 1907 *to* 1911 (*inclusive*).

DISEASE	Average Number of Deaths	Average Death Rate per 100,000
Scarlet fever	1.0	.8
Diphtheria	11.6	9.1
Measles	14.8	13 8
Whooping Cough	29.4	23 8

Whooping cough, like measles, has a certain alternation between years of high death rate and years of low death rate, though the cycle does not appear to be anything like so regular as in the case of measles.

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*Mortality Statistics for 1910. Bulletin 109. United States Bureau of the Census.

Table Showing the Annual Number of Deaths and the Annual Death Rate from Whooping Cough, in Richmond, Virginia, 1871-1911.

YEAR	Population—U. S. Census Bureau	DEATHS FROM WHOOPING COUGH		YEAR	Population—U. S. Census Bureau	DEATHS FROM WHOOPING COUGH	
		Number of Deaths	Death Rate Per 100,000			Number of Deaths	Death Rate Per 100,000
				1890	81,388	45	55.3
1871	52,294	115	219.9	1891	8 7 4	6	7.3
1872	53,550	4	7.5	1892	82,121	33	46.3
1873	54,806	17	31 0	1893	82,486	16	19.4
1874	56,062	37	66 0	1894	82 852	21	25.4
1875	57,318	3	5.2	1895	83,218	4	4.8
1876	58,574	72	122 7	1896	83 584	24	28 7
1877	59 830	15	25.1	1897	83 950	31	36 9
1878	61 086	10	16.4	1898	84 316	3	3.6
1879	62,312	1	1 6	1899	84 682	0	0.0
1880	63 600	42	66.0	1900	85 164	27	31.7
1881	65 379	35	53.5	1901	86,510	35	40.4
1882	67,158	12	17.9	1902	87,916	19	21.6
1883	68,937	54	78.4	1903	89 292	56	62.7
1884	70,716	19	26.9	1904	90,668	2	2.2
1885	72,495	7	9 7	1905	92,044	1	1.1
1886	74,274	42	56 5	1906	93 4 1	52	55.7
1887	76,053	26	34.2	1907	113,4 8	3	2.6
1888	77,832	3	3 9	1908	114,790	33	28 8
1889	79,611	17	21.4	1909	116,167	13	11.2
				1910	127,914	47	36.8
				1911	129,291	51	39 4

The following grouping of the figures in the above table shows the average annual number of deaths and the average annual death rate from whooping cough in five-year periods since 1871.

PERIOD	AVERAGE ANNUAL MORTALITY FROM WHOOPING COUGH	
	Number of Deaths	Rate per 100,000
1871-1874 (4 years)	43.3	81.1
1875-1879 (5 years)	20.2	34.2
1880-1884 (5 years)	32 4	48.5
1885-1889 (5 years)	19 0	25 1
1890-1894 (5 years)	25.2	30.7
1895-1899 (5 years)	12.4	14.8
1900-1904 (5 years)	27.8	31.7
1905-1909 (5 years)	20.4	20.0
1910-1911 (2 years)	49.0	38.1

Average number of deaths from whooping cough for each year since 1871	25.8
Average death rate per 100,000 from whooping cough for each year since 1871	32.3

While both 1910 and 1911 were "whooping cough years," nevertheless there have been eleven years since 1871 when the death rate from this disease was higher than in either of the past two years.

In dealing with whooping cough, epidemiologically, a number of difficulties are encountered: (1) the disease is commonly regarded, both by the medical profession and by the laity, as an insignificant ailment so far as a fatal issue is concerned; (2) the attack itself and, so far as we know, the contagious period last over many weeks; (3) physicians regularly advise that whooping cough patients be out of doors as much as possible, thus exposing a large number of other children; (4) a large proportion of all cases have no physician during the early stage of the disease, and in many other cases the physician fails to make a diagnosis for a long time, there being in fact no really characteristic symptom during the first weeks, (5) no health department has, so far as I know, ever quarantined whooping cough rigidly, and, in view of the facts above stated, such quarantine would appear to be almost impossible and certainly impracticable.

SUGGESTIONS FOR PARTIAL CONTROL OF WHOOPING COUGH.

Our experience seems to indicate that although the whole question of controlling whooping cough is most unsatisfactory, nevertheless it is possible to do some things which will have at least a slight influence on the death rate from this disease. The idea is deeprooted that all children brought up in a city will necessarily have such diseases as whooping cough and measles at some time in life, and that little is to be gained by postponing this time. Here is one direction at least in which good may be accomplished. The following table is given in this connection:

Table Showing the Number of Cases, the Number of Deaths and the Case Fatality of Whooping Cough at Different Age Periods in Richmond During the Year 1911.

AGE PERIOD	CASES		DEATHS		Cases Fatality—Per Cent.
	Number	Per cent. of All Cases of Stated Age	Number	Per cent. of Whooping Cough Deaths at All Ages	
Under 1 year	46	24.8	25	49.0	54.4
1 to 2 years	31	16.7	13	25.4	42.0
2 to 3 years	21	11.5	5	9.8	23.8
3 to 4 years	18	9.7	5	9.8	27.8
4 to 5 years	16	8.6	1	2.0	6.3
5 to 6 years	15	8.1	1	2.0	6.7
6 to 7 years	13	7.0	1	2.0	7.7
7 to 8 years	12	6.5	...	...	...
8 to 9 years	4	2.2	...	...	...
9 to 10 years	4	2.2	...	...	...
10 to 15 years	4	2.2	...	...	...
15 to 20 years	...	...	...	...	...
Above 20 years	1	.5	...	...	...
Total of stated age	185	100.0	...	...	...
Age not stated	8				
Total all ages	193		51		26.4

From the above table it is seen that the very heavy fatality from whooping cough is under one year of age. During the past year, 54.4 per cent. of all reported cases of whooping cough in children under one year of age terminated fatally. Of all our deaths from this disease, 49 per cent. occurred in children under one year. 74.4 per cent. under two years of age; 84.2 per cent. under three years of age. and 94 per cent. under four years of age. There was no death from whooping cough in any person over seven years of age, and this was also true of the 47 deaths which occurred in 1910.

The above considerations point clearly to the great desirability of postponing the attack of whooping cough even for one year, and the cyclic occurrence of this disease indicates further that one year's postponement will frequently mean postponement for two or three years at least, by which time any given child will have reached an age at which the case fatality is significantly lower. These facts have clearly indicated to us the importance of adopting more rigid control of cases of whooping cough. From a study of our past figures, it is unlikely that 1912 will present much of a whooping cough problem, but it is our intention when our next whooping cough year comes to endeavor to control it somewhat along the above lines.

I am indebted to our Medical Inspector, Dr. C. C. Hudson, for preparing all the above tables. He has also gathered other important data and these will be incorporated into a special paper which he and I hope to prepare in the near future.

SMALLPOX.

There were 19 cases of smallpox reported to the Health Department during 1911—all in persons who had never been successfully vaccinated. Of these 19 cases, 5 contracted the disease outside of Richmond, 11 caught it from unreported cases infected outside of Richmond and only 3 persons developed the disease from cases which had been reported to the Department. In these 3 cases it was recognized that the interval since exposure had been too long to offer much chance of heading off the attack by vaccination. All 3 of these cases were under quarantine and observation when the disease developed. The history of smallpox in Richmond during 1911 is fully covered in the reports of the Medical Inspector and the Diagnostician, and in the report from the smallpox hospital, and I refer you to these for further information.

For the past five years the smallpox situation in Richmond has been as fully controlled as it ever will be so long as neighboring States and most rural sections of Virginia continue to neglect systematic vaccination. Richmond is forced to expend comparatively large sums of money every year in caring for cases of smallpox contracted elsewhere. Not in five years have we had any cases of this disease except those contracted outside of Richmond or developing from exposure to such cases before they were reported to the Department. If the active policies of the Richmond Health Department in connection with this disease were universally practised—and especially if they were practised in all other parts of Virginia and in North Carolina—we would soon cease to have any smallpox to deal with.

It may be claimed that this statement can be made of any city, and that, once a city is free from smallpox, the only way in which it can again appear is through cases contracted outside, since the disease cannot originate *de novo*. This is perfectly true, but in making the above statement what is meant is that, even when a case comes into Richmond, every possible line of infection is so promptly followed up by vaccination and quarantine that no further cases ever occur except where unvaccinated persons have been exposed over a week before the original case was reported to us. Even in that event the vaccination of such persons frequently heads off the disease, and where it does not succeed in doing so and the disease develops, these cases do no further damage, as they have been kept under quarantine and observation and are detected immediately and taken to the smallpox hospital. In this way we invariably have the disease completely stamped out inside of three weeks after any case is reported to us. Then comes another case contracted outside of Richmond and the whole thing has to be gone over with again.

Not once in five years has smallpox gained the slightest foothold in Richmond.

TUBERCULOSIS.

There were 268 deaths from tuberculosis of the lungs (consumption) in Richmond during 1911 and 55 deaths from other forms of tuberculosis. This was a decrease of 18 deaths from consumption and an increase of 16 deaths from other forms of tuberculosis in comparison with 1910. In making the comparison with 1910, however, it is but fair to state that there died at Pine Camp (see below), which is located outside of the city limits, 16 cases of consumption taken from Richmond, which otherwise would probably have died in the city.

The number of deaths and the death rate from consumption and other forms of tuberculosis for the past five years is given below:

YEAR	DEATHS FROM CONSUMPTION		DEATHS FROM OTHER FORMS OF TUBERCULOSIS	
	No. of Deaths	Death Rate per 100,000	No. of Deaths	Death Rate per 100,000
1907	260	229.3	47	41.4
1908	223	194.3	35	30.5
1909	242	208.8	52	44.8
1910	286	223.6	39	30.5
1911	268	207.4	55	42.5

As I have stated regularly in my annual reports, the effect of insisting on accurate statement of the cause of death when this was due to tuberculosis was expected to result in an apparent increase in the death rate from tuberculosis in spite of the actual decrease which we felt must be brought about by our work, since so many deaths due to tuberculosis were formerly assigned to other causes. It is therefore with great satisfaction that the above rates are given. They show for the most part a slight decline in the reported death rate from tuberculosis in spite of the facts just stated. When we consider the most remarkable decrease in the death rate from malaria and from bronchitis, pneumonia and other diseases of the respiratory system (under which in former years so many deaths actually due to tuberculosis were hidden), we cannot but feel that, while our reported death rate from tuberculosis is high, there has been a remarkable improvement in recent years.

Of the 268 deaths from consumption during the year, there were 105 among the white population and 163 among the colored. The white death rate was 128.7 per 100,000; the colored rate was 341.5, or 2.65 times as high. Our white death rate compares well with that of the country, but our large negro population brings up our rate for the city as a whole.

TUBERCULOSIS DISPENSARIES.

The two tuberculosis dispensaries of the Health Department have continued their work during the year and have done a great amount of good. I refer you to the reports of the chiefs of clinic for a summary of the work done. I believe that these dispensaries are capable of being a far greater factor in dealing with the tuberculosis situation in Richmond than they are at present. In order for them to accomplish the good of which they are capable, their existence and their work must be kept constantly before the public. To do this demands continued effort, as well as skill in publicity, which is not easily obtainable. Another point wherein I believe a decided improvement can be made is by bringing about closer touch with our central office.

When we started these dispensaries it was recognized that nothing was more important than having skilled nurses connected with them, who would not only be present during the hours when the dispensaries were open but who would also visit the patients in their homes and see that directions were followed out in relation both to the prescribed treatment and to the precautions necessary for the protection of others in the house. We felt ourselves most fortunate in being able to make arrangements with the Instructive Visiting Nurse Association of this city, whereby the Health Department paid for the whole time of one nurse (later of two) and in return therefor the entire corps of nurses of the Association looked after our tuberculosis cases. In this work the nurses of the Association have fully lived up to their obligations, and much of the success of the dispensaries has been due to their efforts.

I believe, however, that the time has now come when it would be to our advantage to have our own corps of nurses. If the City Council gives us the amount which we are asking for in connection with our work for the prevention of infant mortality, we will have three nurses immediately under the Department connected with this branch of the work. With the two tuberculosis nurses whom we now have through arrangement with the Instructive Visiting Nurse Association, we will then have five nurses altogether. With this number of nurses, the considerations which originally led to our feeling that it was to our advantage to have one or two nurses under an outside organization no longer have weight.

I have therefore recommended to you that we establish our own corps of nurses, not employing any greater number than otherwise but having them in a compact body under our own immediate control. This matter is still under your consideration. The only argument which I can see on the other side is the fear that our action might in some way offend the Instructive Visiting Nurse Association and might even be misconstrued by the public and thus reflect on the Association. This must by all means be avoided and our reasons be made perfectly plain. No one appreciates more fully than do the members of the Board of Health and I the splendid work of the Association. In all matters of public welfare they are always found in the very forefront. Their work has been of inestimable service to the Health Department in many directions, and even though we may now find it advantageous to employ our own nurses under the changed conditions, we will always hope to work in the closest relations with the Instructive Visiting Nurse Association. I am confident that they will fully understand the situation.

TUBERCULOSIS CAMP SOCIETY.

In my last annual report I spoke of the organization of the Richmond Tuberculosis Camp Society as one of the most important of the events of 1910 in connection with our advance along health lines. This organization has continued its good work during 1911. Started through the efforts of a small band of public-spirited citizens, the movement has grown and prospered. These men and women have given freely of their time and funds, and to-day the reproach against our city of there being no place for indigent consumptives has been removed to the extent of having provision for some of these unfortunates, although so far only a small proportion of all such cases is provided for, and no provision is made for colored cases.

From the time that Pine Camp, as the hospital of the Society is called, was opened in November, 1910, to the close of 1911 there were 77 patients received and treated. It was the original object of the Society to provide a place where advanced cases of tuberculosis could be received, both for the purpose of giving them the benefit of treatment and for the purpose of removing dangerous foci of infection from the city. The first building was a lean-to of the kind so generally in use for incipient cases. In consequence of this, it was found that the building was not perfectly suited to the treatment of advanced cases, who required more comforts than the lean-to afforded. For this reason, and also because of other considerations, a larger proportion of the cases have been in earlier stages of the disease than was originally intended.

Last summer Mr. J. G. Tinsley generously contributed to the Society a sum sufficient to cover the erection of an infirmary of four rooms and nurses' quarters for the reception of cases in the most advanced stage. This building was completed at the very end of the year.

Too much credit cannot be given the ladies association of Ginter Park, who some months ago pledged themselves to raise a sufficient amount to erect another building. Already their efforts, which have been unremitting, have been successful in raising a considerable part of the required sum. Since the greatest need of the Camp was a building for advanced cases, and since such a building of necesssity costs more than a lean-to, the ladies of Ginter Park agreed to take over the present lean-to and allow this sum to go towards the much-needed building for advanced cases. Construction on this latter has been begun and it is hoped that the new building will be completed by March first. There will then be accommodations for 34 cases of tuberculosis.

The relations between the Tuberculosis Camp Society and the Richmond Health Department are most intimate, two members of the Board of Health and also the Chief Health Officer being on the Board of Directors. I cannot too strongly commend the work which the Society is doing or go too far in expressing my appreciation of the labors of the disinterested and public-spirited citizens, men and women, through whose efforts Pine Camp was established and is being successfully operated.

In 1911 the City Council gave $5,000.00 towards the support of Pine Camp. As twenty patients were regularly under treatment, the city thus contributed less than two-thirds of the cost of maintaining these patients—which is about one dollar a day each—besides being under no expense for the erection or equipment of the plant. With the increased capacity of the institution, the city will be asked to contribute $8,000.00 for 1912. It is to be hoped that this will be done, as the Tuberculosis Camp Society is in fact doing simply what the city should itself be doing—looking out for the treatment and isolation of cases of tuberculosis who are too poor to pay for this themselves and whose presence in the city, under the insanitary surroundings from which this class of patients is taken, is a menace to others. The Society, moreover, even with the larger sum of money which is asked this year, is getting from the city only a part of what the city would have to pay if the hospital were under its own management.

COMPARATIVE MORTALITY OF THE WHITE AND COLORED RACES.

As is always the case, the crude death rate of Richmond was enormously increased in 1911 by reason of the large colored population and their high death rate. The rates for both the white and the colored population were much lower in 1911 than in 1910. Of the 129,291 inhabitants estimated by the United States Bureau of the Census as constituting the 1911 midyear population of Richmond, 85,565 were white and 47,726 were colored. The colored population thus made up 37 per cent. of the total population. The number of colored inhabitants is 59 per cent. of the white.

With nonresidents of both races included, the total number of deaths in Richmond during 1911 was 2,718, of which 1,377 were white and 1,341 were colored. The colored race, with only 59 per cent. as many inhabitants as the white, had 97 per cent. as many deaths. A fairer comparison, however, is one in which nonresidents among both races are excluded. Among the inhabitants of Richmond there were 2,451 deaths in 1911, of which 1,192 were white and 1,259 were colored, the number of colored decedents thus exceeding the white. Having only 59 per cent. as many representatives as the white race, the number of deaths was 6 per cent. greater. These figures are almost identical with those for 1910.

Stated in terms of relative death rates, thereby taking into account in the one figure both the population and the number of deaths the colored death rate per 1,000 was 66 per cent. higher than the white, with nonresident decedents of both races included, and 80 per cent. higher with nonresidents excluded.

As is also usual in Richmond, the number of deaths among the colored race exceeded the number of reported births. It is recognized that the Richmond birth returns for neither race are complete and that the percentage of unreported colored births is probably greater than the percentage of white. During 1911 there were 460 more births than deaths among the white race, with deaths among nonresidents included, and 645 more with deaths among nonresidents excluded. Among the colored race, on the other hand, the number of reported births was 238 less than the number of deaths, with deaths among nonresidents included, and 156 less not including deaths among nonresidents.

Comparing the relation between the birth rate and death rate of the white and colored races, the reported birth rate among the whites exceeds the death rate, nonresidents included, by 5.64 per 1,000 inhabitants, and by 7.91 with nonresident decedents excluded. The reported birth rate among the colored race falls short of the death rate, nonresidents included, by 4.99 per 1,000, and by 3.27 with nonresident decedents excluded.

Colored Race Decreasing.

On their face these figures would unquestionably show that the colored race is actually dying out in Richmond, just as they have shown the same thing year after year. The incompleteness of the birth returns must, however, be remembered. Even allowing that this is a far more important factor with the colored race than with the white, the difference between an excess of 645 for the white race and a deficit of 156 for the colored is so great that it must be certain that the colored race is at least increasing far less rapidly than the white.

It has been customary to believe that the fecundity of the colored race is prodigiously great, far more than sufficient to offset their very high death rate. But the reported birth rate in Richmond in 1911 was only .59 per 1,000 higher for the colored race than for the white, while the death rate was 11.22 per 1,000 higher. Even allowing for considerably less complete returns of colored births than of white, their birth rate is certainly not significantly higher than the white rate, while their death rate is enormously higher.

In my annual reports for the past four years I have called attention to the apparent significance of the regular excess of the colored death rate over the birth rate in Richmond and stated that it unquestionably showed that the colored race was either actually dying out in Richmond (and, by inference, in other Southern cities), or at any rate that it was increasing very slowly in comparison with the white race. I stated that the figures could not be taken as indicating that the same thing was happening in rural districts.

Within the last year, however, the United States Bureau of the Census has published a report, based on the census of 1910, which seems to show that everywhere in the United States, in country as well as in town, the colored race is increasing but slowly as compared with the white races, after making due allowance for white immigration.

I have also secured during the year evidence of another kind bearing upon the problem as applied to rural sections. Through the courtesy of Dr. W. A. Plecker, formerly Health Officer of Elizabeth City county, Virginia, I have received figures of the number of births and deaths reported in that county for the years 1901-1909, inclusive. These figures are given below.

Summary of Births and Deaths in Elizabeth City County, Virginia.

YEAR	POPULATION*		WHITE		BLACK	
	White	Black	Births	Deaths	Births	Deaths
1901	7460	8460	173	107	167	209
1902	7710	8540	167	109	180	193
1903	7960	8660	195	81	207	188
1904	8210	8700	190	118	229	216
1905	8460	8780	200	102	216	188
1906	8710	8860	196	116	222	210
1907	8960	8940	167	123	226	249
1908	9210	9020	201	104	223	206
1909	9460	9100	246	116	198	246
Total			1735	976	1868	1904
Average	8460	8780	192.7	108.4	207.5	211.5

*Population does not include U. S. Reservations, Fort Monroe & National Soldiers Home, which have been deducted from the Census reports.

I am able to testify, both from personal knowledge and from the high esteem in which his work was held by Dr. Cressy L. Wilbur, Chief Statistician for Vital Statistics, United States Bureau of the Census, that nowhere in the country were more accurate vital statistics kept than those of Dr. Plecker when he held the office above mentioned. His figures are as nearly correct as such figures ever can be. Yet they show that in Elizabeth City county, for the nine years covered, births among the white race exceeded deaths by 759, or 78 per cent. while for the colored race deaths exceeded births by 36, or 2 per cent. Stated differently, the white birth rate was 178 per cent. greater than the death rate, while the colored birth rate was only 98 per cent. of the death rate.

In view of the confirmation which the facts above stated gives to the deductions which I have for several years made from our own local statistics, I am more than ever of the opinion that the colored race faces a most serious crisis in this country. The soundness of this conclusion can scarcely be called into question, but even if it be thought in any way exaggerated, it is still impossible to dispute the fact that the death rate among the colored race in the United States is everywhere enormously higher than among the white races. It is little less than astounding that, with this fact recognized for so many years, so little should have been done in connection with investigating the underlying causes.

THE "NEGRO PROBLEM."

Everywhere we hear discussions of the "negro problem." If the present death rate continues there will be no negro problem after a few decades, as the race will have become so insignificant in numbers as to be eliminated as a factor in our national life.

Well wishers of the negro race, especially northerners possessing more money and goodness of heart than understanding of the negro and his needs, spend annually hundreds of thousands of dollars on education of the negro along lines of questionable value. Individuals who are filled with a desire to devote a portion of their great wealth to the benefit of humanity are noted for the paucity of imagination in the methods which they select. It seems incredible that such large sums should be spent annually for educating the negro while not one cent has been devoted to studying the most vital question above discussed. In my first annual report (1906) I directed attention to the above facts and at that time suggested that no higher service could be rendered the negro race than the devotion of a comparatively insignificant sum to the investigation of the underlying causes of his high death rate. So important is this subject that I desire to quote from what I said at that time, being now, after five years additional study of the facts, even more convinced of the correctness of the position which I then took.

> "Without a most thorough investigation of the subject it is impossible to say whether this higher death rate of the colored race is due to inherent weakness of the race or to environment. It is certainly true that the conditions by which the colored race as a whole are surrounded are far inferior from a sanitary standpoint to those enjoyed by the whites, but whether in an equally favorable environment the colored death rate would be as low as the white cannot be predicted. The fact that even in such diseases as apoplexy, Bright's disease, and organic diseases of the heart their death rate is so much higher than among the whites, seems to point to inherent weakness, but the matter is too complicated to be intelligently discussed off-hand.
>
> "There is no doubt whatsoever but that the introduction of better sanitation among the colored people would have great influence on their high death rate, but whether, after all, it can be brought down as low as the white rate is a matter which cannot be foretold. Theoretically, it would seem that the colored race, being so much more recently emerged from savagery than the white, finds conditions in a modern city—even where every attention is paid to sanitation and hygiene—productive of serious results.
>
> "I know of nothing which offers a more attractive field for brilliant research work of a practical nature than does just this problem, nor of any place affording better opportunities than Richmond for such a study. An investigation of this kind, thoroughly conducted, would result not only in a work which would become a classic on the subject, but it should, furthermore, yield practical results of a far-reaching character. This is a field in which some of our wealthy philanthropists

> might well spend a few thousands, with the certainty of reaping results from the study of problems equally as important as those which claim the attention of the Rockefeller and Carnegie Institutes."

If the above facts could be properly brought to the attention of some of our wealthy philanthropists, I am confident that there would be a most excellent chance of having these recommendations followed, and that we would see established, probably here in Richmond, an institute for the study of this problem, so enormously important from both a sociological and a scientific standpoint. In the following table are given the death rates of the white and colored races in Richmond from certain important causes during the year 1911 and the ratio of the colored rate to the white:

Table Showing Comparative Mortality of the White and Colored Races from Certain Causes in Richmond, Virginia, During 1911.

CAUSE OF DEATH	NO. OF DEATHS		DEATH RATE PER 100,000*		Ratio of Colored Death Rate to White
	White	Colored	White	Colored	
Typhoid fever—					
Including nonresidents	16	7	19.6	14.7	.75
Residents only	12	5	14.7	10.5	.71
Malarial fever	0	1	.0	2.1	....
Measles	8	4	9.8	8.4	.85
Scarlet fever	2	1	2.5	2.1	.85
Whooping cough	26	25	31.9	52.4	1.64
Diphtheria and croup	12	1	14.7	2.1	.14
Influenza	14	18	17.2	37.7	2.20
Dysentery	13	13	15.9	27.2	1.71
Consumption	105	163	128.7	341.5	2.65
Other forms of tuberculosis	26	29	31.9	60.8	1.91
Syphilis	13	24	15.9	50.3	3.16
Cancer (of all organs)—					
Nonresidents included	80	33	98.1	69.1	.71
Residents only	71	27	87.0	56.6	.65
Diabetes	18	6	22.1	12.6	.57
Apoplexy	97	94	119.0	197.0	1.66
Other diseases of the nervous system	51	47	62.5	98.5	1.58
Organic heart disease	129	88	158.2	184.4	1.17
Bright's disease	125	84	153.2	176.0	1.15
Heart and Bright's disease combined	254	172	311.4	360.4	1.16
Pneumonia (lobar or unqualified)	41	74	50.3	155.0	3.08
Broncho-pneumonia	28	55	34.3	115.2	3.36
Lobar and broncho-pneumonia combined	69	129	84.6	270.3	3.20
All diseases of the respiratory system (consumption not included), that is Group IV of the International Classification	94	198	115.3	414.9	3.60
Diarrhea (under 2 years)	87	109	106.7	228.3	2.14
Diarrhea (over 2 years)	17	12	20.8	25.1	1.21
Appendicitis—					
Including nonresidents	11	5	13.5	10.5	.78
Residents only	2	3	2.5	6.3	2.56
Diseases of the puerperal state	19	18	23.3	37.7	1.62
Congenital debility	63	64	77.2	134.1	1.74
Senile debility	24	7	29.4	14.7	.50
Legal electrocution†	1	2	1.2	4.2	3.50
Suicide	24	2	29.4	4.2	.14
All other violent deaths	65	82	79.7	171.8	2.16
Ill-defined or unknown	23	34	28.2	71.2	2.53
Total deaths, all causes—					
Including nonresidents	1,377	1,341	1,688	2,810	1.66
Residents only	1,192	1,259	1,461	2,638	1.80

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*All rates in this table are calculated from the official figures of the U. S. Bureau of the Census for 1911 midyear population. These figures are: White, 81.565; Colored, 47,626.

†Only one of the criminals legally electrocuted was a resident of Richmond and he did not commit the crime in Richmond for which he was executed.

For, the most part the above table shows a ratio of the colored death rate to that of the whites which is fairly constant from given causes from year to year. As a general thing the colored death rate in Richmond from typhoid fever and from the contagious diseases of childhood is lower than the white. Whooping cough is a notable exception. Being a disease of the respiratory system, this is to be expected, the negro death rate in the entire group of respiratory diseases being regularly so greatly in excess of the white rate.

Consumption and diseases of the respiratory system showed the greatest disproportion between the death rate of the white and colored races of any of the diseases with high mortality among both. Combined they account for 2.44 deaths per 1,000 among the white race and 7.56 among the colored. They caused 14 per cent. of all deaths among the white race and 27 per cent. among the colored.

AVERAGE AGE AT TIME OF DEATH.

The average age of all decedents at the time of death, during the year 1911, as 35.35 years, or 35 years, 4 months and 6 days. The average age of the white decedents was 40.93 years, or 40 years, 11 months and 5 days; of colored decedents, 29.63 years, or 29 years, 7 months and 17 days. The above figures are calculated from the age distribution of decedents as given in Table 12, except that no separate calculation is made for decedents in the various groups under one year, these being calculated as averaging one-half year of life. The total years lived by all decedents under one year is so small a factor in the final result that the error introduced by grouping these together is practically negligible.

The average age of all decedents was 1 year, 1 month and 28 days greater than in 1910—for white decedents, 1 year and 11 days greater, and for colored decedents 1 year, 4 months and 13 days greater. Although too much stress must not be laid on this point, still it is satisfactory to be able to state that those who died in Richmond last year had lived an average of nearly one year and two months longer than those who died in 1910.

As stated regularly in these reports, too great significance should not be attached to the average age at death, certainly not in comparing one community with another in which the age distribution of the population may be entirely different. Comparisons from year to year in the same community are of some value, however, provided the character of the population has not greatly changed. The much smaller number of decedents under one year of age (534 against 623 in 1910) was the chief factor in making the average age of all decedents more than one year greater than in 1910.

SANITARY IMPROVEMENT OF MILK SUPPLY.

Our work in connection with sanitary improvement of the milk supply of Richmond has been in every way exceedingly satisfactory during the past year. Nothing that has been done by the Rchmond Health Department has attracted more attention or given more universal satisfaction. This work, which was started on May 1, 1907, has progressed steadily since that time. In each of my last two annual reports I have stated that so high a standard had been attained that it was doubtful how much additional improvement could be looked for. I am nevertheless able again to report still further advance.

Justice demands that I should state that the truly remarkable results which have been accomplished during the past two years have been largely due to the ability, energy and good judgment of our Dairy Inspectors, especially Mr. T. J. Strauch, Chief Dairy Inspector. Mr. Strauch's work has been of the highest grade. He has lost no opportunity of adding to his store of information along the lines of his work, and is to-day to be regarded as a real expert, not only in connection with the sanitary end of milk production, but also in many matters of dairying which, while not strictly demanded of an inspector working under the health authorities, have enabled him to give sound practical advice to our dairymen, thereby not only assisting them greatly in many ways, but also, of necessity, increasing the respect which the dairymen now feel for the work of the Health Department. Practically all our dairymen have come to regard him as a real friend and helper. Mr. Cantrell, Assistant Dairy Inspector, though newer to the work, has also given entire satisfaction and has shown the greatest devotion to the interests of the Department.

On the other hand, such results as we have obtained would have been impossible but for the active co-operation of the men who produce the milk. I am able to report to you that during the year there has not been a single instance of lack of harmony between the Department and the producers. This does not mean any relaxation in our requirements or in the strictness with which they have been enforced. On the contrary, we have been more rigid than ever. In but few instances were dairymen found not living up to our rules and regulations. In every such case—even when the violation was such as to make necessary the suspension or revocation of a dairyman's permit—the justice of the position taken by the inspector was always admitted, conditions were corrected, the permit was restored or reissued, and everything went on smoothly again. The excellent feeling now prevailing between the Richmond Health Department and the milk producers is due to their appreciation of the necessity of rigid inspection and to their complete confidence in the ability and justice of our inspectors.

The remarkable and continued progress which has been made in improving sanitary conditions on the dairy farms supplying milk and cream to the Richmond market is shown in detail in the following table, in which the percentage of dairy farms falling in different classes (in accordance with their scoring on the official score card) is given for each of the fifty-six months since dairy inspection was started in May, 1907.

Table Showing the Percentage of Dairy Farms in the Various Classes from May, 1907, *Through December,* 1910.

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS							
	1907							
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring below 30	13.8	26.5	3.9	4.0	....	....	...	...
Scoring between 30 and 40	3.8	42.9	21.0	10.7	..	....	..	
Scoring between 40 and 50	26.2	22.4	38.2	29.4	40.0	23.7	14.8	15.8
Scoring between 50 and 60	18.0	8.2	22.4	33.3	45.0	35.6	45.9	36.8
Scoring between 60 and 70	10.8	....	13.2	22.6	12.5	33.9	29.5	23.6
Scoring between 70 and 80	4.6	....	1.8	....	2.5	6.8	8.2	18.4
Scoring between 80 and 90	...	....	..	....	....	....	1.6	5.4
Scoring between 90 and 100	....	..	....	...	...	...	....	...
Ave. of all scores for the month	41.5	36.4	47.5	50.5	51.4	57.0	58.4	60.5

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1908											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sep.	Oct.	Nov.	Dec.
Scoring 40—50	2.8	...	.	...	..	...	...	...	...	...	..	...
Scoring 50—60	11.3	13.6	6.8	5.7	1.4	...	...	...		...		.
Scoring 60—70	35.2	44.1	39.8	34.3	29.7	27.2	24.7	16.4	16.0	10.6	26.0	27.0
Scoring 70—80	31.0	25.4	34.2	42.9	51.4	48.4	48.0	52.2	50.7	46.8	46.0	39.7
Scoring 80—90	19.7	16.9	19.2	17.1	14.8	21.2	23.4	25.4	29.0	38.3	22.0	30.1
Scoring 90—100	...	...		..	2.7	3.2	3.9	6.0	4.3	4.3	6.0	3.2
Ave. of all scores for the month	70.4	70.0	71.5	72.0	74.0	75.2	75.3	76.4	76.1	77.5	75.6	75.6

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1909											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Scoring 50—60	..	..	*3.2	...			...		...	.	.	...
Scoring 60—70	23.8	23.7	30.6	25.4	20.8	29.8	18.9	21.1	15.3	22.6	15.0	6.9
Scoring 70—80	54.0	49.2	51.6	54.0	52.8	46.4	53.2	53.3	52.8	47.6	48.4	57.5
Scoring 80—90	17.4	23.7	11.4	15.8	23.6	20.2	24.1	21.1	26.4	25.0	33.4	29.9
Scoring 90—100	4.8	3.4	3.2	4.8	2.8	3.6	3.8	4.5	5.5	4.8	3.2	5.7
Ave. of all scores for the month	74.8	74.8	72.6	75.0	75.3	74.8	76.9	75.9	77.4	76.4	77.6	78.3

*The two dairy farms scoring under 60 in 1909 were allowed to continue the sale of milk during March, owing to special circumstances.

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1910											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sep.	Oct.	Nov.	Dec.
Scoring 60—70	4.9	6.9	2.6	4.3	2.3	1.1	4.0	1.0	1.0	1.1		1.0
Scoring 70—80	49.4	47.2	48.7	48.5	49.5	49.9	45.5	50.0	48.5	46.1	46.5	39.6
Scoring 80—90	37.0	37.5	38.4	38.6	42.5	43.3	42.4	42.0	43.5	47.2	46.5	50.0
Scoring 90—100 . . .	8.7	8.4	10.3	8.6	5.7	6.7	8.1	7.0	7.0	5.6	7.0	9.4
Average of all scores for the month	80.2	79.8	80.3	80.4	79.6	81.2	80.3	80.7	80.6	80.5	80.8	81.6

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS.											
	1911											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 70—80 . .	42.1	39.1	44.1	48.9	41.1	46.1	39.8	39.6	41.0	40.6	35.0	27.1
Scoring 80—90	51.0	52.9	50.5	48.9	53.3	50.0	58.2	55.7	57.0	56.4	62.0	67.4
Scoring 90—100 . . .	6.9	8.0	5.4	2.2	5.6	3.9	2.0	4.7	2.0	3.0	3.0	5.5
Ave. of all scores for the month	81.6	81.7	80.8	80.4	81.4	81.1	81.1	81.1	81.3	81.3	81.6	82.6

While the insertion of the above table is necessary for the purpose of showing in detail the improvement which has been made month by month in the scores of dairy farms producing milk for the Richmond market from the time our inspections were started until the close of 1911, still the length of the table interferes with its usefulness for those who would get quickly a comprehensive conception of what has been accomplished. For this reason the following table is added, in which the figures given in the longer table are summarized by years:

Table Showing the Percentage of Dairy Farms in the Various Classes, from May, 1907, *Through December,* 1911—*Summary by Years.*

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED DURING THE YEAR WHICH FELL IN EACH CLASS				
	Year				
	1907	1908	1909	1910	1911
Scoring below 30	6.0	. . . .	. . . .	. . .	. . . .
Scoring between 30 and 40	13.2	. . . .	.	. .	. . . .
Scoring between 40 and 50	26.3	.2	. . . .	. . .	. . . .
Scoring between 50 and 60	30.1	3.2	.3	. . . .	. . . .
Scoring between 60 and 70	18.3	27.6	20.8	2.5	. . .
Scoring between 70 and 80	5.2	43.1	51.7	47.4	40.4
Scoring between 80 and 90	.9	23.1	23.1	42.4	55.2
Scoring between 90 and 100		2.8	4.1	7.7	4.4
Average of all scores for the year	50.4	74.1	75.8	80.5	81.3

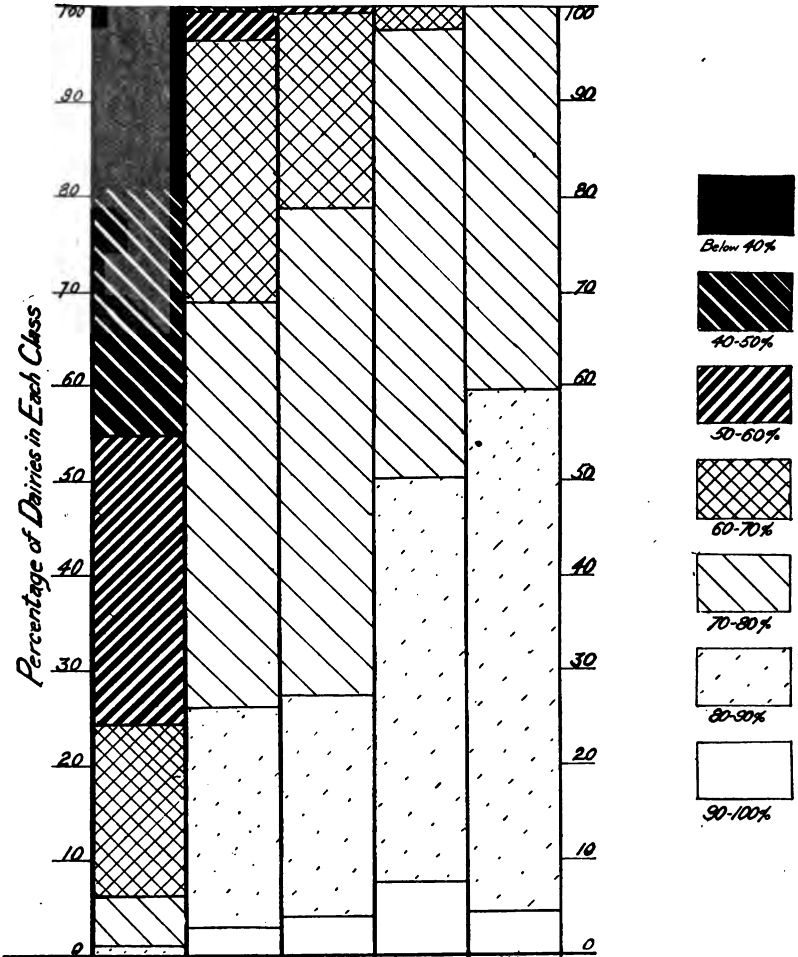
The figures in the last table are presented graphically in the following diagram, except that one group is made of dairies scoring under 40:

DIAGRAM SHOWING IMPROVEMENT IN

DAIRY SCORES

DURING FIVE YEARS OF DAIRY INSPECTION
1907-1911

HEALTH DEPARTMENT RICHMOND, V^a



YEAR	1907 (8 mos.)	1908	1909	1910	1911
Total No. of Scores	520	846	1000	1066	1220
Average Score	50.4	74.1	75.8	80.5	81.3

A study of the above diagram and tables shows that the improvement in the character of the dairy forms producing milk for the Richmond market and in the methods followed at these places (both of which features enter into the official score) has progressed along almost ideal lines. During the first two months after our work started, 57 per cent. of all places scored under 40. All these were cut out after the first four months' work. After the second year no place scored under 50; after the third year, none under 60, and during 1911 no place scored under 70.

At the other end of the line, not until after six months did we have any place scoring as high as 80, and during the entire year 1907 only .9 of one per cent. of all places reached the 80 class. In the second year 25.9 per cent. of the places scored above 80; in the third year, 27.2 per cent.; in the fourth year, 50.1 per cent., and during 1911, the year just closed, 59.6 per cent. of all the dairy farms producing milk for Richmond scored above 80.

The percentage of dairy farms scoring above 90 reached its maximum in 1910 (March of that year showing the highest proportion of such places of any single month) and showed a falling off for 1911. At first glance this might be thought to be a bad showing, but closer consideration, it is believed, brings out another aspect of the question. There is somewhat of a tendency to criticize the work of dairy inspection as demanding of dairy farmers much in the way of fancy requirements—things having little relation to actual sanitary conditions. The fact that the percentage of dairy farms scoring above 90 is not increasing is a sufficient reply to this. No health department can ever insist on scores above 90, however cordially it may approve and encourage those men who go to work of their own accord (as many around Richmond have done) to put their dairy farms on this plane of surpassing excellence.

The briefest single statement which shows the improvement which has been brought about by our inspections and educational work is that when we started in May, 1907, there were scarcely any dairy farms scoring above 70 (only 1.7 per cent. of all places as the average for the first five months), while during the year 1911 not a single place scored lower than 70. In other words, the best places sending milk into Richmond when our work started were no better than the worst are at present.

The following method of presenting the above figures shows the improvement from another point of view:

Table Showing the Percentage of Dairy Farms Scoring Above Various Limits—Summary by Years.

CLASS	YEAR				
	1907	1908	1909	1910	1911
Scoring above 70	6.1	69.0	78.9	97.5	100.0
Scoring above 80	.9	25.9	27.2	50.1	59.6
Scoring above 90		2.8	4.1	7.7	4.4

When the general average of all places producing milk for the Richmond market reached a score of 78.3 in December, 1909, it seemed open to question whether much further advance could be made, but the average for the entire year 1910 was 80.5, and during 1911 the average for the year was 81.3, while the average score for December, 1911, was 82.6, a full point higher than had ever been attained before. The following table is interesting in this connection:

YEAR	Average Score of all Dairy Farms	Advance over Previous Year	Advance over 1907
1907	50.4	. . . . . .	. . . .
1908	74.1	23.7	23.7
1909	75.8	1.7	25.4
1910	80.5	4.7	30.1
1911	81.3	.8	30.9

Great as is the advance in the average score for 1911 as compared with that for 1907, the full force of what has been accomplished is not brought out by this comparison alone, since the average score for 1907 was decidedly higher than the average score for the first months after work was begun, while average score for 1911 is not as high as the average score for the last month of the year. The total improvement from the beginning of the work up to the end of 1911 is shown by the following figures:

Average score for May, 1907	41.5
Average score for June, 1907	36.4
Average score for May and June, 1907	38.9
Average score for December, 1911	82.6
Points advance from the beginning of dairy inspection (average scores for May and June, 1907) to the end of 1911	43.7

This last figure shows that there has been an improvement of 112 per cent. in our dairy farms since inspection was started in 1907. The average of the scores for May and June, 1907, is taken as representing conditions at the beginning of our work. The reason why the average score for the first month of inspection was higher than for the second is that the larger and better places were visited first, in the attempt to reach promptly as large a proportion of our total milk supply as possible. Another reason for the lower June, 1907, scores is that, being new to the work of scoring, our inspector was probably too lenient in his scoring during May. The average of the scores for the first two months is believed to represent fairly the actual conditions when our work was begun. If anything, these scores were too high rather than too low, so that the actual improvement is perhaps even greater than these figures show.

REPORT OF DAIRY INSPECTOR.

For further facts concerning our work of inspection of dairies I refer you to the very comprehensive report of the Dairy Inspector. His report is not only interesting to all who wish to follow the work of the Richmond Health Department, but it also contains many points of the greatest value to our dairymen. Some of these are matters of general knowledge, but others are the results of the very careful and intelligent personal study which Mr. Strauch has made from day to day in the course of his work. If our dairymen would follow his advice on two points alone—the weeding out of cows yielding low quantities of milk and the use of ensilage—they would derive benefits which would be immensely profitable to them. No one can read impartially the report of our Dairy Inspector without realizing that dairy inspection as conducted by the Richmond Health Department, while primarily carried on for the protection of the health of our citizens, is of incalculable advantage to the dairymen themselves.

It is interesting to note that it was necessary to suspend only 10 permits for the sale of milk during the year, and that all of these were subsequently restored. The number of permits revoked was only 11, and all of these but one were subsequently restored. In spite of the wonderful improvement in the milk supply which has been made, the number of permits suspended or revoked is surprisingly small, and is less in the past two years than ever before. Examination of the reports of the Dairy Inspector for the five years that this work has been conducted by the Health Department shows the following:

	1907	1908	1909	1910	1911	Total in five years
Permits suspended	21	2	1	7	10	41
Permits suspended and restored	21	1	1	7	10	40
Permits revoked	23	24	38	6	11	102
Permits revoked and reissued	5	19	31	6	10	71
Permits revoked and not reissued	18	5	7	..	1	31

From the above it is seen that the total number of suspensions and revocations of permits during the past two years has been only 34, and in every instance but one the permit has been restored. In almost every case the suspension or revocation was in effect only a few days, the permit being restored or reissued as soon as the conditions calling for suspension or revocation had been corrected. The single instance in which the revocation still stands is that of a dairyman whose place had been allowed to run down very badly on account of his ill health. He has not yet got in condition to resume business.

In every one of the 21 instances in which permits were suspended or revoked during 1911 the justice of the action taken by the Department was admitted, conditions were corrected (except in the one case above cited), and the best feeling now prevails.

New Barns and Milk Houses.

Another view of the improvements which have been brought about is shown by the Dairy Inspector's report of new barns and milk houses built during the year. The number of new barns was greater than in any year since we started inspection. This is shown below.

	1907	1908	1909	1910	1911	Total in Five Years
New barns erected	19	18	16	25	33	111
New milkhouses erected	77	20	23	17	16	168

Besides the 33 barns and 16 milk houses completed during the year, there were at the end of the year 9 barns and 7 milk houses in course of construction. A number of the new barns reported were on dairy farms of new shippers to Richmond, but quite a number replaced inferior barns of old shippers. I am confident that no city in the country can show as high grade of sanitary cow barns as can the city of Richmond. The fact that more new barns were erected during 1910 and 1911 (58) than during the three years preceding (53), in spite of the fact that new barns were insisted on in a large proportion of the cases in which they were built during the first three years, bears irrefutable testimony to the fact that our farmers are finding that it is to their own advantage to have modern, well-lighted, well-ventilated, sanitary barns. Those who have made the change are our best missionaries in persuading others to follow the same course.

NEW SHIPPERS.

When our work of dairy inspection was started the cry was raised that we would drive dairymen out of business by the strictness of our requirements. It is true that some few dairymen of a timid nature allowed themselves to be frightened in advance, without making an honest attempt to see what they could do. On the other hand, there has been but a single instance in which a dairyman was actually unable becaus of circumstance to meet our requirements. This was a case in which a poor woman was deluded into going upon a farm which we had persuaded a dairyman to leave because of almost irremediably bad conditions. She made the move without consulting the Department, and, in spite of every allowance which we could make, this unfortunate woman was unable to make the improvements on which we had to insist.

So far from discouraging dairymen, our high standard or requirements has apparently made dairying a more attractive pursuit, and every year witnesses an increase in the number of persons producing milk for our market. During almost all of 1911 the supply of milk produced immediately around the city exceeded the demand, and in several instances men who equipped themselves splendidly for the sanitary production of milk were forced to wait some months before they could find a market for their product. During the year 31 new shippers entered the city, while 20 of the old ones discontinued for one reason or another, but in no instance because any dairyman could not meet our requirements had he so desired.

BOVINE TUBERCULOSIS.

The Richmond Health Department has not yet adopted regulations in connection with bovine tuberculosis, further than excluding cows visibly affected with this disease. We have felt that, important as this question undoubtedly is, there were nevertheless other matters of even greater importance which demanded attention first. We believe, furthermore, that the question of bovine tuberculosis is one which can be handled in a satisfactory manner only by the State authorities. A start has been made in this direction, and it is to be hoped that the State will push the matter vigorously. If it does not, the time is unquestionably near when the city of Richmond must take steps itself. We have used every effort to let the farmers know that this time will soon come and that they should keep constantly in mind the building up of clean herds. To enforce the tuberculin test squarely, without giving time for this, might mean disaster to many of our farmers and a milk famine for Richmond, unless the questionable expedient of pasteurization were resorted to.

We feel fairly confident that the improvements which have been made on our dairy farms during the past five years have done much to eliminate tuberculosis from the cows supplying milk to Richmond. With cows housed in well-lighted, well-ventilated barns, with concrete floors of open construction, on which accumulations of manure are not allowed to remain, and with the cows kept in the stable as little as possible, we feel sure that tuberculosis is far less prevalent than under conditions the opposite of this. That this is not mere theory is shown by the fact that during the year six of the herds producing milk for Richmond have been tested with tuberculin. These herds had been in sanitary barns for from three to five years. The size of these herds and the number of reactors found are given in the report of the Dairy Inspector. Two herds, of 80 and 28 cows, respectively, had no reactors. Three herds, of 18, 26 and 24, respectively, had 1 reactor each, and one herd of 25 cows had 2 reactors. Among the 201 cows thus tested, only 5 reactors were found, or slightly under 2.5 per cent., truly a wonderful showing!

It would seem probable, of course, that the herds tested were ahead of the average, since it is likely that the men who had their herds voluntarily tested felt that they were in good shape. If the percentage of reactors averaged only three times as high as for the herds above mentioned, this would mean a loss of only 300 cows among the entire 4,000 (approximately) from which milk comes to the Richmond market. If this represents anything like the real state of affairs, our farmers would have everything to gain and would not suffer even a temporary loss of any considerable amount in immediately having their herds tested and getting rid of all reacting animals. Of course those who have more tuberculosis than this would in the end be even greater gainers, although they would suffer some loss at first.

During the coming year this question will be further looked into, and wherever possible dairymen will be persuaded to have their herds tested. If results similar to the above can be obtained, the much dreaded problem of bovine tuberculosis will turn out to be simple of solution.

In this connection I may mention that I have had several conferences with Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, in which I have endeavored to get him to assist us in this matter. I have pointed out the exceptional opportunity which is afforded in Richmond for ascertaining the influence of sanitary surroundings on the prevalence of bovine tuberculosis. Our herds have been for several years in the best of environment, both as regards construction and cleanliness of the stables. Infection should thereby have been reduced and resistance increased. Richmond has, moreover, the advantage of being near to Washington, and offers every opportunity for such a study—an experiment station, as it were, on a large scale. Dr. Melvin thinks well of the scheme, and it is most probable that it will be carried out. A considerable number of our dairymen will welcome this opportunity and will voluntarily have their herds tested, especially if the State of Virginia makes provision, as in the past two years, for partial remuneration for condemned animals. After the lead is once taken, others will follow, certainly if the percentage of reactors is as low as we are inclined to believe.

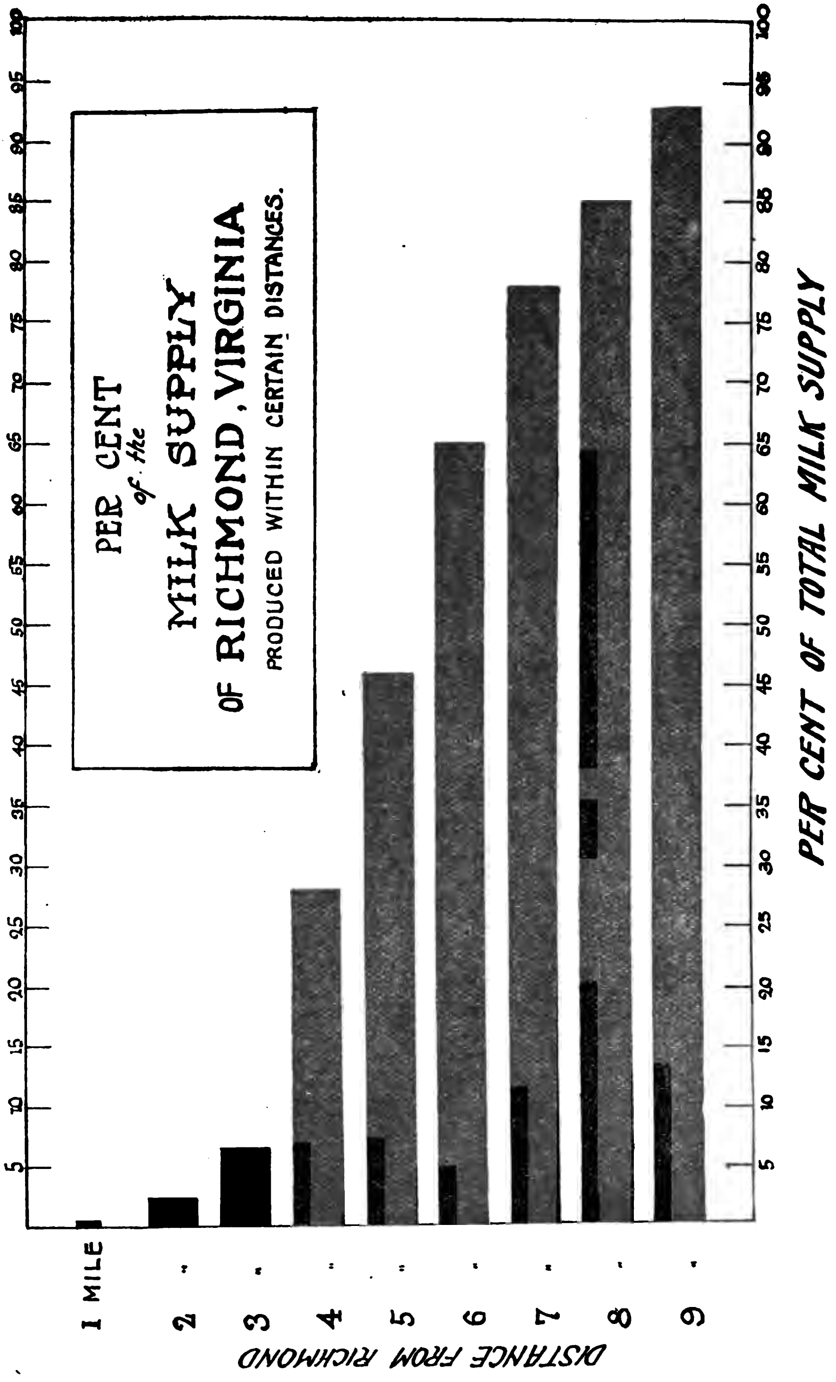
RICHMOND'S MILK PRODUCED NEARBY.

One of the chief reasons why we have been able to get the market milk supply of Richmond on such an excellent sanitary basis is the fact that so large a percentage of our total milk supply is produced within a very few miles of the city. In my last annual report I showed that 93.5 per cent. of our total milk supply was produced within 12 miles of the city. At the close of 1911 the situation was even more favorable, 93.0 per cent. of our milk supply now coming from within 9 miles of the center of the city. The advantages of this can hardly be overestimated, as it enables our people to get milk only a few hours after milking; it enables us to exercise constant and strict supervision over our dairy farms, and whenever contagious disease is reported on any dairy farm we are able to investigate the case within a few hours and take the necessary steps for the protection of our people.

Table Showing the Percentage of the Total Milk Supply of Richmond Produced within Each Mile of the Center of the City, up to Nine Miles.

DISTANCE FROM CENTER OF CITY.	PERCENTAGE OF TOTAL MILK SUPPLY.	
	Produced in Stated One-Mile Circle or Radius.	Total Production within Stated Radius.
Less than 1 mile	.5	.5
1–2 miles	1.9	2.4
2–3 miles	4.0	6.4
3–4 miles	23.0	29.4
4–5 miles	16.6	46.0
5–6 miles	19.0	65.0
6–7 miles	13.0	78.0
7–8 miles	7.0	86.0
8–9 miles	8.0	93.0

Nearly one-half our total milk supply thus comes from within five miles of the center of the city; over three-fourths from within seven miles, and all but one-fourteenth from within nine miles. The figures given in the above table are shown graphically in the following diagram:


PER CENT
of the
MILK SUPPLY
OF RICHMOND, VIRGINIA
PRODUCED WITHIN CERTAIN DISTANCES.
PER CENT OF TOTAL MILK SUPPLY
5
10
15
20
25
30
35
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70
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90
95
100
1 MILE
2 "
3 "
4 "
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6 "
7 "
8 "
9 "
DISTANCE FROM RICHMOND

BACTERIOLOGICAL EXAMINATION OF MILK.

During 1911 bacteriological examination was made of 1,353 samples of regular market milk and of 322 samples of cream and of milk used for butter making. The results are shown in detail in the report of the City Bacteriologist. As comment is to be made on the results in comparison with those of 1910, the figures for the two years are here summarized:

BACTERIA PER CUBIC CENTIMETER	PER CENT. OF ALL SAMPLES EXAMINED	
	1910	1911
Less than 10,000	14.1	31.0
Between 10,000 and 50,000	56.5	46.0
Between 50 000 and 100,000	15 3	11.7
Between 100,000 and 250,000	11,9	6.9
Between 250,000 and 500,000	2.2	2 0
Between 500,000 and 1,000,000		.8
Between 1,000,000 and 5 000 000		1.4
Over 5,000,000		.2

The above figures show that there were more samples of high bacterial content in 1911 than in 1910. While in 1910 no sample contained over 500,000 bacteria per cubic centimeter, 2.4 per cent. of the samples in 1911 fell in this class. The 1910 results were in this respect most extraordinary, and the 1911 showing cannot but be regarded as wonderfully good for the general market supply of a city the size of Richmond, in the small number of samples of high bacterial content.

Although there was this small percentage of samples containing over 500,000 bacteria per cubic centimeter in 1911 (33 samples out of the 1,353 examined), the quality of the milk as a whole was far superior to that examined during 1910, the percentage of samples containing less than 10,000 bacteria per cubic centimeter being more than double. Combining the figures in the first part of the above table, we get the following:

PERCENTAGE OF MILK SAMPLES OF LOW BACTERIAL CONTENT.	1910	1911
Per cent. of samples under 10,000	14.1	31.0
Per cent. of samples under 50,000	70.6	77.0
Per cent. of samples under 100,000	85.9	88.7

These last figures show that in 1911 nearly one-third of our general market milk supply contained less than 10,000 bacteria per c.c., being in this respect up to the standard demanded for certified milk, while over three-fourths of our milk contained less than 50,000 bacteria, and over seven-eighths contained less than 100,000. These results can be fully appreciated only by those who are familiar with the showing made by other cities. They must be admitted to be quite remarkable.

"BACTERIAL INDEX" OF RICHMOND MILK.

The difficulty of comparing the quality of the milk (as judged by its bacterial content) sold in different cities, and in the same city from month to month and from year to year, has never been successfully solved. Statements of average bacterial content are wellnigh worthless on account of the influence which a few samples of very high content has upon the general average even when the rest of the samples are remarkably low. Thus, the 33 samples containing over 500,000 would of themselves have given an average count for our 1,353 samples last year of about 59,000 even had the remaining 1,320 samples been sterile. In other words, a statement of the average count would be practically meaningless.

The method of statement which I have heretofore used is that given in the tables of the City Bacteriologist and in the briefer tables which I have given above. This method, however, is too cumbersome, and, moreover, it does not enable us to make a final comparison of the quality of our milk from year to year except in a general way. Bacteriologists everywhere have realized the difficulties mentioned and have felt the need of some method which would obviate them. I have recently suggested such a method.* A number of bacteriologists have already expressed themselves as favoring the method which I have proposed. Dr. Chas. E. North, of New York City, has suggested a modification of my method which still further increases its range of application. The combined method was accepted by the National Commission on Milk Standards, of which I have the honor of being a member, at their last meeting, held in New York City on January 26-27, 1912, and will be recommended by them for general use.

Applying this method to our own results for the past two years, we get the following:

Table Showing the Bacterial Index of the Market Milk Supply of Richmond for the Years 1910 *and* 1911.

YEAR	BACTERIAL INDEX												
	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
1910	85.4	86.7	82.0	83.1	82 0	73.7	74.7	81.8	84 2	86.8	85.2	88.0	82.8
1911 . . .	89 5	88.3	91.3	90.3	76.2	81.8	77.6	79.4	83.1	84.4	89.0	88.5	85.0

In the bacterial index as above calculated, the "rating figures" used were those suggested by me in my Washington paper. As these figures were merely suggestions, and as others will probably be finally agreed on by bacteriologists for universal use, I will give them here in order that the preceding calculations may be understood if the rating figures are changed in the future.

CLASS	Rating Figure
Under 10,000	100
10,001 to 50,000	90
50 001 to 100,000	75
100 001 to 250,000	50
250 00 to 499,000	20
500 000 and over	0

The advantage of employing the suggested bacterial index is apparent to any one who would endeavor to show, from the table giving the summary of the 1910 and 1911 results, which year's milk was on the whole best from a bacterial standpoint. While the number of samples under 10,000 was over twice as great in 1911 as in 1910, there was, on the other hand, 2.4 per cent. of the 1911 samples with a higher bacterial content than any of the 1910 samples.

What was the relative effect of these two factors on the general excellence of our milk supply? Of course the answer to this question is to a great extent a matter of personal opinion, but if bacteriologists agree on fair rating figures for employment in the suggested method, it becomes a matter of simple calculation. As shown above, the bacterial index for Richmond market milk in 1910 was 82.8; in 1911 it was 85.0. That is, the 1911 milk was decidedly the better, as judged by its bacterial index, and this would be the opinion of most bacteriologists from inspection of the first of the above tables.

It is interesting to note that the bacterial index as calculated with the rating figures which I have suggested corresponds quite closely with the average scores of our dairy farms for the two years.

	1910	1911
Average score of dairy farms	80.5	81.3
Bacterial index of milk samples	82.8	85.0

Of course it cannot be expected that the bacterial index and the scores of dairy farms will agree thus closely as a regular thing, but on the whole the two should at least vary in the same direction. Naturally the bacterial index will always be lower in the hotter months of the year, while this factor does not materially influence the scores of dairy farms.

MILK LEGISLATION.

At the 1910 session of the General Assembly of Virginia, a bill was introduced by Delegate Throckmorton, of Henrico county, providing that any dairyman who felt himself aggrieved by the decision of any local dairy inspector could appeal to a board whose decision would be final. This bill was finally defeated. A bill of the same kind has again been introduced by Delegate Throckmorton before the Legislature now in session. This bill originally was even worse than the former one, in that it allowed the dairyman to sell his milk pending appeal and in that it empowered the State Dairy and Food Commissioner to revoke at his pleasure the commission of any local dairy inspector, which commission was required by the proposed bill for all local dairy inspectors. These two most objectionable features of the bill were withdrawn.

As matters stand at the time this is written (February 11th), the Throckmorton bill has been sent back to the Legislature by the Committee on Agriculture and Mining with the recommendation that it be not passed. The board of appeal as originally provided for in the Throckmorton bill consisted of a dairyman selected by the aggrieved dairyman, the Chief Health Officer of the city, and the State Dairy and Food Commissioner. We have fought this bill strenuously on the ground that the control of its own milk supply is distinctly the right of any municipality, and that each city, having adopted its own standards and having provided for carrying them out, cannot leave the final decision of questions relating thereto to any outside authority.

RICHMOND'S BOARD OF APPEAL.

While earnestly opposed to the Throckmorton dairy bill, we nevertheless are entirely satisfied for our dairymen to have a board of appeal if they want one. So excellent are the relations between the Richmond Health Department and the dairymen that during the past two years there has been no instance in which any dairyman would have gone to a board of appeal had one existed. On my recommendation, however, the Board of Health, at a regular meeting held on January 29th, created a board of appeal for our local dairymen. This board consists of one member of the Board of Health, one dairyman, selected by the aggrieved dairyman from a list of three nominated by the Richmond Dairymen's Association, while the Mayor of the City has been requested to serve as the third member, and has agreed to do so. The board as thus constituted meets with the entire approval of our dairymen and, should occasion arise, it is believed that satisfaction will be given on both sides.

RICHMOND'S WATER SUPPLY.

For the second full year Richmond has had a most excellent water supply, provided by the purification system which was put in operation by the Water Department in December, 1909, and which I have described in several of my reports. This system is exceeding in its practical operation the most sanguine hopes of those who recommended it.

Not only is Richmond now getting water attractive in appearance and admirably suited for all industrial purposes, but its sanitary quality is all that could be desired. Believing as we do, that, while the greater part of the typhoid fever of former years—that which occurred in the summer and fall—was never due to the water supply, there is no question but that a considerable proportion of the cases occurring during the winter months was due to this cause. This has been entirely eliminated since the purification system was put in operation.

On December 31st the resignation of Mr. E. N. Ezekiel, who had been in charge of the settling basins since they were put in operation, went into effect. Although he was not an officer of the Health Department, I feel that, owing to the intimate connection between water supply and public health, it is but proper that I sould refer to the excellent manner in which Mr. Ezekiel discharged the duties of his office. Familiar with every detail in the operation of the system, enthusiastic in his work and fully appreciative of the responsibility involved in superintending the purification of the water supply of a city of 130,000 inhabitants, he invariably managed to bring out the best possibilities of the system and furnished our people water of splendid quality in every respect during the two years he was in charge of the basins.

In connection with the subject of our water supply, I cannot too earnestly protest against the effort now being made to do away with the position of director of the settling basins and to have analyses of water made by the City Chemist. Search may be made far and wide without the finding of a single competent sanitary authority who would countenance the operation of a plant for the purification of the water supply of a city the size of Richmond without expert supervision. In the successful operation of such a plant numberless details of importance are constantly arising demanding expert knowledge. The purification plant of Richmond is almost unique. Its operation is certainly very economical—probably the most economical of any plant in the United States which is giving equally good results. We are getting water the purity of which is beyond question, and getting it at wonderfully low cost. To jeopardize the success of a plant which cost about half a million dollars for the sake of saving a few hundred dollars a year would be the height of folly, and even this slight saving is most problematical, as I believe the cost would actually be increased in the absence of expert supervision.

It is the duty of the director of the basins to supervise every detail of operation. The analyses which he makes are undertaken for the purpose of indicating how the basins should be run and to judge how well they are accomplishing their purpose. To have routine samples collected at the basins by an ordinary mechanic or watchman and alalysed in town by a chemist, however skilfull, would be little more than a perfunctory performance, from which no good could possibly be expected.

If the fatal step is taken of abolishing the position of director of the settling basins and if thereafter we should have an outbreak of typhoid fever due to our water supply (such as we undoubtedly had in the winter of 1908, before the basins were put in operation), the victims (or their families if they died) would have excellent grounds for suit against the city. Such action would place the responsibility for this inexcusable attempt at economy squarely on the shoulders where it would belong.

The Superintendent of Water Works, Mr. E. E. Davis, who fully appreciates the necessity of giving to Richmond the very best and safest water possible and who always occupies an advanced position on all matters connected with the water works, is bitterly opposed to doing away with the position of director of the settling basins, as is also Mr. Morgan R. Mills, Chairman of the Committee on Water.

BACTERIOLOGICAL LABORATORY.

No work of a modern municipal health department is of greater usefulness than that done in the bacteriological laboratory. This work has come to be recognized by physicians as one of the greatest aids in making prompt and accurate diagnoses in certain important infectious diseases. During the past year 3,070 specimens were examined in connection with the diagnosis of typhoid fever, tuberculosis and malarial fever, and for both the diagnosis and release of cases of diphtheria.

During 1911 our Bacteriologist, Mr. A H. Straus, has introduced the examination of blood cultures as a further aid in the diagnosis of typhoid fever. This examination is made only on the special request of the attending physician, or with the consent of the attending physician in some cases in which the diagnosis of typhoid fever has seemed to the Medical Inspector to be very uncertain. As a result of this method, several cases which had been regarded as typhoid fever (one of them terminating fatally) proved to be pneumonia, as shown by the recovery of the pneumococcus, and not the typhoid baccillus, from the blood.

The more extensive application of the direct examination of swabs and of the five-hour culture method in cases of suspected diphtheria has added to the usefulness of the laboratory. In order for laboratory work to have any value in connection with the diagnosis of disease, such work must command the confidence of the physicians. The painstaking work of our bacteriologist has earned for him this confidence among the members of the medical profession in Richmond.

BIRTHS.

There were 2,940 births reported during 1911, of which 1,837 were white (968 males and 869 females), and 1,103 were colored (561 males and 542 females). These births are classified in Tables No. 2 and 3. The number of births reported in 1911 was 206 greater than in 1910, there being an increase of 188 white and 18 colored.

The above figures give a birth rate of 22.74 per 1,000 for the entire population. The reported white rate was 22.52, and the colored rate was 23.11. While there was an increase in the number of births and in the birth rate reported, as compared with 1910, the returns are believed still to be decidedly incomplete. Of the births reported, a very large proportion were not returned by the physician or midwife in attendance until their failure to do so had been called to their attention by our office. Every effort to secure these unreported births is regularly made, by checking up the death certificates of infants under one year of age, by following up the names of infants secured by the Department nurses in their canvass and by the sanitary officers in the course of their work, and by several other check methods. But for this the number of births reported each year would be far smaller than it actually is.

During 1912 we will undoubtedly have to resort to reporting to court all delinquent doctors and midwives. The loss of time involved in following the methods above mentioned is very considerable. It is now more than ever important to secure as full birth returns as possible. In addition to the points which make complete returns of all births always a matter of great importance, it is our object, as mentioned elsewhere in this report, to make the study and prevention of infant mortality our chief piece of new work during 1912. This work will be vigorously pushed, and it cannot be successfully prosecuted unless reasonably accurate returns of births are secured.

While the birth rate as reported in 1911 is not believed to show the actual rate, still it is far more satisfactory than it was prior to the reorganization of the Health Department in July, 1906, as is shown by the following table:

Year	Number of Births Reported.	Reported Birth-Rate per 1,000.
1900*	818	9.61
1901	729	8.42
1902	752	8.55
1903	666	7.46
1904	636	7.02
1905	608	6.61
1906†	1,133	12.13
1907‡	2,311	20.37
1908	2,806	24.44
1909	2,839	24.44
1910§	2,734	21.37
1911	2,940	22.74

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*The present ordinance requiring the reporting of births went into effect in 1900.

†Health Department reorganized July 1, 1906.

‡Annexation of new territory on December 6, 1906, added 18,615 to population.

§Annexation of Manchester on April 10, 1910, added 10,370 to population.

Infant Mortality.

The subject of infant mortality is one to which we have devoted special attention during the past two years. It is recognized everywhere that in no single direction is there so great an amount of needless waste of human life as occurs among infants under two years of age, and especially under one year. This question has been discussed somewhat at length in the last two annual reports of the Health Department.

Sanitarians everywhere are agreed that no factor in connection with infant mortality in cities is of greater importance than the question of the general milk supply. It is universally conceded that dirty milk is responsible for a large proportion of the deaths of infants in cities in which the milk supply is not rigidly safeguarded. In May, 1907, our work for the sanitary improvement of the milk supply was commenced, and so rapidly did it progress that when, in September of the same year, an effort was made in certain directions to cripple this work by having the City Council curtail our powers, over three-fourths of the physicians of Richmond (all whose opinion was secured) stated in writing that in no summer during their practice in Richmond had they seen so little infantile diarrhea, and all but one of them attributed this to improvement in the general milk supply of the city.

For the past three years we have realized that our milk supply had been brought to such a degree of excellence that no further lowering of the infant mortality could be expected simply from further improvement in this direction. Our investigation of every fatal case of infantile diarrhea during 1909, 1910 and 1911 showed no instance in which the blame could properly be laid to the account of impurity in the milk furnished by our regular licensed dairies. In most instances of fatal infantile diarrhea we found that foods other than fresh cow's milk had been used (condensed milk babies showing the highest percentage of all); in a considerable proportion of the cases various prepared foods had been used. Of course many of the babies who died had been on regular dairy milk, and many of them were breast fed, but in these latter cases death could not in any instance be attributed to the character of the food, but to neglect of some kind. In fact, in practically every fatal case of infantile diarrhea we found ignorance of the mother as the most prominent factor in the death of the baby. This ignorance often led to improper feeding, but other matters played a very important part. Obviously, no matter how good the general milk supply might be, it could not possibly have any influence on the health of babies who were not fed on it.

MILK STATIONS NOT ESTABLISHED.

These facts, and others set forth in preceding annual reports, led us, in March, 1910, to start along additional lines of work for lowering infant mortality in Richmond, and this work has been steadily followed up since that time. The reasons why this work did not take the direction of establishing milk stations—a measure so commonly adopted in other places—have been explained in previous reports. Briefly reviewed, these reasons were: (1) the purity of our general milk supply, making it unnecessary to provide special means for getting proper, safe milk for babies; (2) abundant facilities for securing this milk in instances in which the mothers are unable to purchase it for themselves; (3) the difficulty of having some one visit the station each day for the baby's milk; (4) the great cost and the liability to abuse and danger of pauperizing families if the milk is given without charge; (5) the financial system of our city government, which would make it hopelessly complicated to have mothers pay, in whole or in part, for milk got from stations under the Health Department; (6) the taking away from the mother of a responsibility which should rest on her, by doing for her that which she should learn to do for herself.

But it is now generally recognized that the functions of properly conducted milk stations go far beyond the mere furnishing of good milk, or specially prepared milk, and that they serve as a means of getting in touch with mothers and teaching them how to care for their babies. When we came to consider this phase of the milk station, as applied to the needs of Richmond, we felt that here, too, the end could be accomplished far more readily, economically and efficiently by other means. As just stated, the milk station serves to get an available list of mothers with young babies and to instruct these mothers after they are once located. Evidently, if the mothers can be located by other means milk stations are unnecessary for this purpose.

After locating the mothers with young babies, the milk station has the advantage of having these mothers come together at regular intervals, often bringing their babies with them. This gives the means of instructing these mothers in classes, thereby effecting economy of time on the part of the instructors. While such group instruction has this obvious advantage, as well, perhaps, as the additional advantage of developing a kind of class spirt and an emulation on the part of each mother to show the best results with her special baby, there is much to say on the other side. For one thing, it is of most questionable advantage for mothers to take their babies out, probably in the heat of the day, to attend a mothers' meeting, in a climate as warm as that of Richmond.

ADVANTAGES OF HOME INSTRUCTION.

Always assuming that other means can be found of locating babies whose mothers need instruction and are willing to receive it, it must be admitted that no instruction in classes can take the place of the instruction which each mother needs individually—not only because of the peculiar requirements of her own special baby, but also because of her own capacity to understand what it is necessary for her to know. An enormous advantage in teaching the mother in her own home over instructing her at a milk station is that by the former method the nurse sees for herself the conditions under which the baby lives. Hundreds of details must be looked into and the instruction must suit the individual case. The kind of room the baby sleeps in, the number of persons in the room, the arrangements in each home for preparing the baby's food, and the best utilization of the means at hand for this purpose, the means of caring for bottles and nipples, the facilities for getting the baby in the open air as much as possible, the cleanliness of the premises, the care taken with the diapers, the intelligence (or lack thereof) of the person, or persons, who look after the baby when the mother is not around—these are a few of the things that can be seen and followed up by the nurse who sees the baby in the home. First of all, however, the nurse does not limit herself to telling the mother how to prepare the baby's food and care for it, but she prepares the food in the mother's presence at the first visits, and actually sees the mother do it herself at as many subsequent visits as may be required to be certain that it is done properly.

Among the advantages of this method, not the least is that the knowledge which the mother thus gains is not limited in its application to the one baby then under observation, but later babies of the same mother profit by the lessons. Nor is this all. Neighbors in a great many instances seeing what has been accomplished, apply the same methods to their own babies, or request the Department nurse to take charge of them. Many of the homes in which the Department nurse is a regular visitor thus become neighborhood centers, from which good radiates for many blocks.

LOCATING THE BABIES.

So far as getting in touch with babies whose mothers needed instruction was concerned, we have never encountered the least difficulty. The means by which this was accomplished have been set forth in previous reports. Three main methods have been employed: a house-to-house canvass in two districts in which the infant mortality had been especially high in previous years; following up birth certificates which, from our knowledge of the location and other conditions, led us to suppose that special instruction in the care of the baby was needed, and, finally, taking on cases especially referred to the Department, by physicians or others. Besides these general policies, special cases were taken up for special reasons. For example, as mentioned in the report of our nurse in charge of this work, one baby was visited because our daily papers had told of a negro woman with a very young baby having dropped dead on the street. Knowing the handicap under which this necessarily placed the baby—suddenly cut off from its natural nourishment and from its mother's care—this house was at once visited and every effort made to secure proper supervision for the baby. While it is true that this baby's life was not saved, the case nevertheless illustrates the efforts made by our head nurse to locate and follow up cases in which help was most needed.

Practically all the illegitimate babies whose births were reported were followed up. The high mortality among these babies is everywhere recognized. Every set of twins born in the city was visited, since the high death rate among these is also well known.

KIND OF BABIES SELECTED.

From what has been said above it must be evident that the babies seen by our nurses were selected because they appeared to be most in need of help. Babies in bad surroundings, babies referred because of their weak condition (many of them actually ill and some desperately so when first seen), illegitimate babies, twins and babies who had lost their mother—these formed a large proportion of all the babies under supervision during 1911. Besides this, every effort was made to get the babies as soon as possible after birth.

It is self-evident that, under such circumstances, the death rate among the babies selected for supervision would naturally have been much higher than for the general run of babies in the city if no effort had been made to save them. Careful study of the work done in a number of other cities cannot but lead in a great number of instances to considerable suspicion that the babies selected have been taken on later in life than with us, after they had already run the gauntlet of at least the first month of life—during which, in Richmond, about 50 per cent. more babies die than in the next two months put together—and that, to put it mildly, no effort has been made to select babies naturally handicapped in their struggle for existence. Indeed, in some instances it would even appear that such babies are purposely avoided, or, when inadvertently accepted, that they are actually dropped.

In no other field of public health work is it quite so easy to get fake results. Obviously, the easiest way by which one can be enabled to report a very insignificant mortality among supervised babies is to take for supervision a group of babies among which the mortality would naturally be low. With us, on the other hand, the sole aim was to work among babies where help was especially needed and where, but for our work, the mortality would have been exceedingly high. This plan does not enable us to show among these babies anything like as low a rate of mortality as could have been shown if a group of babies under average conditions had been selected, while, had we worked among babies especially favored, a mortality of practically nothing could of course have been secured.

With the class of babies selected by us, it is impossible to state what the mortality would have been but for our work, but it is certainly very conservative to claim that it would have been at least twice as high as the mortality of infants in general in our city. We therefore felt that if the mortality among our babies had been even as high as among all babies in the city we would have accomplished a great deal. As a matter of fact, it is not possible to make an accurate statistical comparison, but, made as carefully as possible, our figures show that, in our group of supervised babies, the mortality was much lower than the general infant mortality of the city.

RESULTS OF INFANT WORK.

Altogether 617 babies were seen by our nurses. This includes a number of babies seen only once in the course of other work and never actually regarded as under the supervision of our nurses. It includes others who died within a day after beeing seen, and who could not therefore have been benefited by the work. It includes a number of infants who were lost sight of because their parents moved and could not be located without more effort than we were able to make on account of the large amount of work on the nurses. It includes a number of babies who were ill (many of them in desperate condition) when first seen. It is evident, therefore, that not all of the 617 babies on our list can be regarded as supervised cases, or as cases with a fair chance of survival, yet the figures even for this entire list are remarkable, as is shown by the following considerations.

There were 2,940 births reported in Richmond during 1911, and there were 534 deaths among infants under one year of age, or 18.2 per cent. of all babies who were born. Among the 617 babies mentioned above, there were 63 deaths during the year, or 10.2 per cent. Deducting from the total 2,940 infants born, the 617 seen by our nurses, there remained 2,323 not seen by them. Similarly deducting from the total 534 deaths the 63 deaths occurring among babies seen by our nurses, there remain 471 deaths among the remaining 2,323 babies, or 20.3 per cent. In other words, the mortality among the babies seen by our nurses was exactly half that for the remaining babies in the city.

I have stated above that the babies selected by our nurses were so specially handicapped in the struggle for existence that I believe the death rate among them would naturally have been at least twice as high as for the general run of infants in the city. But it has just been shown that the actual mortality among these babies, owing to the nurses' work, was one-half of that of other infants.

The above figures show what was accomplished with the entire list of 617 babies. But, as above stated, a number of them could not possibly be regarded as under our supervision. The number which should properly be dropped, on account of the considerations above mentioned, was 80, thus leaving 537 babies under more or less adequate and satisfactory supervision. Among this number 41 died before the close of the year, or 7.6 per cent. This figure represents more fairly the fatality among the group of babies supervised by our nurses.

During the year 1911 every effort was made to get the babies as early as possible. The mortality among infants is greatest soon after birth. Of the 534 infants under one year who died in Richmond last year, 119 (or 22 per cent. of all) died under one week; 196 (or 36 per cent. of all) died under one month, and 300 (or 56 per cent. of all) died under 3 months. Of the 537 supervised babies, 122 (or 23 per cent.) were less than one week old when first visited by our nurses, in 19 cases the mother being attended and advised before the baby was born; 214 (or 40 per cent.) were under one month, and 344 (or 64 per cent.) were under three months. It is thus seen that the babies selected were very young—at the very age when mortality among infants is highest.

We cannot justly claim statistical accuracy for the figures set forth above in connection with our results. The nature of the problem does not admit of exact mathematical demonstration. In the first place we do not know the actual number of births in Richmond, since the returns are incomplete. Other factors present difficulties which make exact statements impossible. Yet when every source of error is considered and allowed for, there can be no reasonable doubt as to our having saved a very large number of lives among infants by the work which we did in 1911.

With the experience which we have gained, and especially with the data which seem to indicate clearly certain lines to follow in the future, I am confident that our work during 1912, if we are granted the small additional appropriation wherewith to carry it on, will be productive of greatly improved results.

The work which we did in the past year would have been impossible but for our good fortune in the selection of a chief nurse. Miss Elisabeth Detwiler, who has been in charge of this work since it was started in March, 1910, brought to the work extensive experience, buth in nursing and along executive lines. She has shown throughout a splendid grasp of the subject. The other two nurses employed during the summer months, Miss Maude E. Minter and Miss Lelia Davison, also did most excellent work.

LOW INFANT DEATH RATE IN 1911.

The number of infants under one year of age dying in Richmond last year was 534. The death rate was the lowest for any year since 1906. The statistics prior to that time are not sufficiently accurate to enable us to make a reliable comparison. The average death rate of infants under one year of age from 1907-1910 inclusive was 4.59 per 1,000 population. The rate for 1911 was 4.13 per 1,000. The lowering in the total number of infant deaths is shown by the fact that in 1908 there were 530 deaths of infants under one year and in 1909 there were 525. Although the population in those years was 14,501 and 13,124 less, respectively, than in 1911, the number of infants dying under one year of age was only 4 and 9 less, respectively. In 1910, there were 623 deaths among infants under one year, or 89 more than in 1911.

We believe that the great lowering in the infant death rate was in considerable part due to the work which our nurses did. The lowering would have been much greater but for the fact that 1911 was a whooping cough year, and 25 infants under one year died of this disease. Besides this, there was a distinct epidemic of infantile diarrhea in September and October, a most unusual thing. In spite of these handicaps, there was this great lowering in the infant death rate.

FUTURE WORK FOR LOWERING INFANT MORTALITY.

The studies made during 1910 and 1911 have shown that there is much to be learned about the prominent causes underlying infant mortality. Especially in connection with infantile diarrhea (which is responsible for about 30 per cent. of all deaths among infants under one year of age) is there a great deal of research work to be done. We believe that our work has clearly indicated some points of great value which have not as yet been generally recognized. Just as our work in connection with typhoid fever in Richmond led to our finding that there were special factors at work, different in their relative importance from what was true in the North, so, we believe, there are factors of much the same kind in connection with infantile diarrhea. And just as, once these factors were recognized in connection with typhoid fever, we were able to lower our death rate from that disease to a wonderful extent, so, we believe, we will be able to do in connection with infantile diarrhea.

The material which we have collected in this direction is of great value. I had expected to incorporate much of it in the present report, but I find that to do so would make the report too voluminous. This material will, therefore, be made the subject of a special paper on infant mortality which it is my intention to prepare in the near future.

In order to prosecuate this study of infant mortality as vigorously as its importance demands, we have asked the City Council for $1,500.00 increase in the appropriation made to our expense account for 1912. If this is given, we will make this subject our special new work for the present year.

INFANTILE DIARRHEA NOW REPORTABLE.

Our studies of typhoid fever would have been impossible if we had been forced to confine our attention to the fatal cases. Every case of this disease occurring in the city was carefully studied. Equally true is it that we cannot solve certain most important questions in relation to infantile diarrhea if we limit our studies to those cases which terminate in death. On my recommendation, the Board of Health, acting under authority of an ordinance approved August 18, 1906, has added infantile diarrhea to the list of diseases which must be reported by the attending physician.

INFANT HOMES.

Acting under power conferred by recently enacted State and city laws, the Richmond Health Department has done a great deal during 1911 in improving the condition of infant asylums in the city. Conditions at some of these were very bad when this work was started, and the death rate in these was appalling. The proprietors of these institutions (except in the case of a few which were hopelessly bad and which have gone out of business) have co-operated well with us in their efforts to get in better shape; the improvements which have been brought about are great, and the death rate has been correspondingly lowered. Part of the decrease in the infant mortality of Richmond last year was due to the smaller number of deaths occurring in institutions of this kind.

PLUMBING INSPECTION.

Inspection of plumbing was originally regarded as one of the important functions of health departments, on account of the supposed dangers of "sewer gas." Sanitarians now believe that this was an utterly erroneous conception, and, indeed, they have even abandoned the use of the term sewer gas. Nevertheless it is exceedingly important that the plumbing fixtures of all houses be properly installed and kept in proper repair. Though sewer gas is no longer regarded as the cause of any contagious disease, the importance of human excrement itself is becoming each year more and more recognized. Common decency, as well as health considerations, demands that all plumbing should be sound and tight; in other words, that it should conform to reasonable rules and regulations. Unless all new work and all additions and alterations in connection with old plumbing are under official inspection this will not be accomplished.

Not only this, but the investigation of complaints in connection with plumbing frequently brings to light conditions which cannot but be regarded as a distinct menace to health. For all these reasons plumbing inspection has a distinct relation to public health.

There was an unusual number of new buildings erected in Richmond in 1911. The report of the Plumbing Inspector shows that he and the Assistant Inspector made 3,314 inspections during the year. Many of the new buildings were very large ones—several of them being "skyscrapers"—and the work on these necessitated long and frequent visits.

It gives me great pleasure to commend the work of our Inspector, Mr. Thos. M. Landers. I regard him as one of our most valued officers, thoroughly capable and intensely interested in his work and in the general welfare of the Department. Mr. Boaz, Assistant Inspector, has also done most valuable work.

SANITARY INSPECTIONS.

Before the days of modern sanitary science the abatement of nuisances constituted one of the chief activities of health departments, and, indeed, in the absence of great epidemics, almost their only one. With the growth of accurate knowledge as to the means by which communicable diseases are spread—invariably by germs derived from an existing case of the specific disease, from a recently recovered case or from a carrier—sanitarians came to regard the abatement of nuisances as having little connection with protection of the public health, and this is the attitude of many of the leading sanitarians to-day.

But there is a distinct change of sentiment now appearing. While we know that the old idea that typhoid fever comes from bad odors from a stable or elsewhere, that malaria is due to night air in swampy regions, that emanations from long weeds spread disease, and that most popular ideas of the same kind are utterly fallacious, still we know that house flies (one of the great carriers of typhoid) breed in horse manure in ill-kept stables; that mosquitoes, which breed in standing water and fly chiefly at night, are the means by which malaria is conveyed, that long weeds may hide deposits of human feces, among which may be the feces of a typhoid carrier, and that, in many other instances, nuisances complained of by the public, while not to be dreaded for the reasons which lead to the complaint, are actually intimately connected with the causation of disease, and that, in consequence of this fact, their correction must be recognized as a public health measure of no small importance.

It seems evident that we have important work to do in combating, on the one hand, the false ideas of the public as to the real sanitary significance of many common nuisances and, on the other hand, the equally erroneous ideas of many sanitarians to the effect that the abatement of these common nuisances is not an important health measure. I regard this subject as one of such practical importance that I have recently set forth my views thereon quite fully in a paper presented before the American Public Health Association.*

The reasons which I have there assigned for regarding intelligent abatement of nuisances as a most important health measure cannot well be repeated in the present report, but I believe they are thoroughly sound in the light of our present knowledge regarding the means by which infections are spread.

Both on account of these views and also on account of the fact that there had been no increase in the number of sanitary inspectors in Richmond since 1893, since which time the city had increased 57 per cent. in population and 120 per cent. in area, the Board of Health, on my recommendation, secured from the City Council one additional sanitary officer last summer and is now requesting two more. The ordinance providing for this increase is now pending before the Committee on Finance. Favorable action on the part of the City Council in this matter will add greatly to the efficiency of the Health Department.

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*Present Views of the Importance of Municipal Sanitary Inspections for the Abatement of Nuisances by Ernest C. Levy. M. D., read before the American Public Health Association—Section of Municipal Health Officers, at the 39th annual meeting of the Association, held in Havana, Cuba, December 4-9, 1911.—*Journal of Public Health*, January, 1912.

THE FLY NUISANCE.

In no single direction will the requested increase in the number of sanitary officers be of as great value as in connection with abatement of the fly nuisance. Altogether disregarded as a sanitary problem until the time of the Spanish-American war, the house fly (rechristened the "typhoid fly" by Dr. L. O. Howard) is at present variously regarded by different groups of sanitarians as a factor in the causation of disease. Like all questions which have become more or less of a fad, there is undoubtedly danger of the public's following popular outcry in place of demanding scientific proof. That the house fly caused a great amount of typhoid fever in the army during the Spanish-American war was proved beyond question by the most painstaking investigation; that it is regularly responsible for the spread of the same disease throughout the country is equally beyond dispute. The main point on which authorities fail to agree is in regard to the amount of trouble it occasions, and here there is considerable difference of opinion.

The ablest discussion of this point which I have seen was in a paper presented by Dr. C. E. Terry, City Health Officer of Jacksonville, at the last meeting of the American Public Health Association. Dr. Terry shows that, whatever may be the importance of the house fly in cities of the North, usually well sewered and having a much shorter fly-breeding season, conditions in the average city of the South, with its large number of privies, usually in bad repair and unscreened, decidedly approach the conditions of an army camp.

Having access on the one hand to human fecal matter, much of which is infected with typhoid bacilli, and on the other hand having access to human food, there can be no difference of opinion on the part of impartial observers as to the immense importance of the house fly in spreading typhoid fever. I believe that we are certainly safe to-day in asserting that in any city with numerous privies the fly is to be regarded as an actual menace to the health of the people and that every effort should be made to exterminate, or at least to hold down as far as possible, this pestiferous insect. In southern cities, with their longer fly-breeding season, the problem is especially urgent.

Elsewhere in the present report I have referred to what was unquestionably an epidemic of infantile diarrhea which occurred in Richmond last September and October, after having had but three deaths from this disease in the latter half of August. While not committing myself to the theory that the disease was in this instance spread chiefly by flies, it is nevertheless a significant fact that flies were notably few in Richmond last summer until late in August and that they were very prevalent during September and October. This is discussed more fully in another part of this report.

STABLE INSPECTION.

Horse stables, both public and private, constitute a serious problem in cities. Unpleasant neighbors at best, when badly conducted they become a positive nuisance by reason of foul odors and, above all, by reason of the fact that horse manure is the chief breeding place of the house fly. On April 29, 1910, the Board of Health adopted rules and regulations governing the construction and maintenance of stables in the city. These rules were purposely made very mild, yet their rigid enforcement would do much towards banishing flies from Richmond. Unfortunately, with only five sanitary officers for the entire city, it has been utterly impossible to give to stable inspection the attention which its importance deserves. If we succeed in getting before next summer the two additional inspectors asked for, it is my purpose to put them immediately on stable inspections and endeavor to have the stables in Richmond in fair shape by fly season.

As a matter of fact, simple inspection, together with such powers as the Health Department now has to correct the situation, will not completely solve the question. So important a factor is the city horse stable, that the entire question of location, construction and maintenance of them should be under the Health Department. Not until this is done, and not until public sentiment will support the most rigid enforcement of penalties for offenders, will we be able to control the situation.

CITY DUMPS.

While the horse stable is the chief sourse of flies, a considerable percentage of them breed in other places. Any accumulation of decaying organic matter offers favorable conditions for this. The city dump is unquestionably a factor of much importance in this connection. If householders were always careful in separating their garbage from their ashes and rubbish, this would be less the case. The ordinary city dump contains not only ashes, bottles, tin cans and other inorganic rubbish, which, from a strictly public health standpoint, are unobjectionable, but also organic material in which flies readily breed. So long as this state of affairs continues the fly nuisance will never be completely controlled.

THE MOSQUITO NUISANCE.

Mosquitoes were less prevalent than usual in Richmond during 1911. The territory annexed in 1906 contained innumerable pools and ditches which served as admirable breeding places for these insects. The work of the Street Department has done away with most of these ditches, while the work of the Health Department has accomplished a great deal in having owners fill or drain pools of water on private property. This alone will never correct the evil. So long as the people themselves remain ignorant of the fact that the smallest collection of water remaining for ten days is sufficient to breed large numbers of mosquitoes, or, knowing this fact, so long as they permit buckets or tin cans of water or sagging gutter pipes or any similar thing to remain on their premises, so long will special neighborhoods be infested with mosquitoes, no matter how well drained they may be.

The seeming impossibility of educating the public—even the most intelligent portion of the community—on so simple a point was well brought out at the exhibit which the Richmond Health Department had at the State Fair last fall. In this exhibit was shown a jar of water in which mosquitoes were actually breeding. The water contained larvæ, pupæ and fully developed mosquitoes. Among the thousands who visited this exhibit, it is safe to say that at least ninety-five per cent. found this feature of the exhibit intensely interesting because of its novelty. In view of the immense amount of information which has been written and published on this question in magazines and newspapers, as well as in special bulletins issued and distributed by health departments, it was little short of astounding to see persons of unmistakable intelligence taking in for the first time the fact that mosquitoes lay their eggs in standing water, that these eggs hatch into larvæ (the ordinary "wrigglers" or "wiggle-tails" of the rain barrel) and that these larvæ, after going into the pupal stage, become the familiar mosquitoes. Thousands of visitors were so impressed by actually seeing these things for themselves, that hundreds of them at least, it is hoped, will pay more attention to their own premises next summer and fall, and it may not be too much to hope that a few of them will enlighten their neighbors.

Our entire work in connection with sanitary inspections and the abatement of nuisances has been better handled than ever before by reason of the ability and energy shown by Mr. W. T. Tuck. Although the position is not created by city ordinance, Mr. Tuck was designated Chief Sanitary Inspector by the Board of Health, his salary remaining the same as before, and the work of sanitary inspections was placed under his immediate supervision, the other inspectors reporting directly to him, thus not only increasing the efficiency of the entire division but also relieving the Chief Health Officer from the necessity of supervising innumerable details. The plan has worked admirably. Recognizing the importance of his work and the admirable manner in which he has discharged his duties, the Board of Health has recommended an ordinance providing for the creation of the position of Chief Sanitary Officer, with a salary larger than that paid to the other inspectors. It is to be hoped that this ordinance will be adopted by the City Council.

It gives me pleasure to commend the other sanitary officers for the excellence of their work and for their devotion to the interests of the Health Department in every way.

PRIVIES.

Repeated reference has been made by me, in my annual reports, monthly bulletins and special articles, to the important sanitary aspect of privies within the city limits. Each year's work and study serve but to emphasize the fact that human fecal matter is the greatest single cause of disease in any community in which it is not properly cared for.

Afflicted as Richmond was in 1908 with over 3,500 privies which could not be abandoned because of lack of sewer facilities, our work done early in 1909 for the placing of all these privies in the best sanitary condition did more than any other one thing towards reducing our typhoid fever death rate to 24.1 per 100,000 inhabitants, while the lowest rate ever previously recorded in Richmond was 43.5 per 100,000, and the average rate for 26 years had been 77.8 per 100,000. Since then the rate has been still further lowered—to 21.9 in 1910 and to 17.8 in 1911. In this remarkable accomplishment the work done for the improvement of privies occupies first place as a general policy. Our direct work in following up every reported case of typhoid fever and seeing that every possible precaution was taken to prevent the spread of the disease has been invaluable, and without this it would have been impossible to bring about the results just mentioned or, indeed, to have made the study which led to our adopting our policies in connection with privies.

Early in 1911 I brought to the attention of the Board of Health the fact that it had been two years since we had a general inspection of the privies in Richmond and that in this time a large proportion of them had undoubtedly fallen again into bad repair. I felt that unless this was attended to we could not avoid having our typhoid fever death rate go up again, and I therefore recommended the employment of an officer for the special purpose of inspecting all privies in the city and getting these in sanitary condition before warm weather. The Board of Health followed my recommendation. It being found that the progress made by a single officer was not sufficiently rapid to accomplish results before the middle of May, a second officer was later put on the work.

In their inspections these two officers used for each house with a privy a special card blank, on which was entered the location of the house, the name of the owner, full data concerning the condition of the privy, and all orders as to the repairs demanded and the time given to comply with those orders. In this way we not only succeeded in getting every privy in the city again in good repair, but we have now on file in our office a complete card record of every privy in the city. As sewers are extended and privies abandoned, these cards are taken out of the file, and when a new house is erected in unsewered portions of the city, where a privy is necessary, a card for such house is made out. In this way our files are kept complete, giving us records of very great sanitary importance.

SEWER EXTENSIONS.

Sewer extensions during 1911 progressed rapidly, those already completed having enabled us to do away with 704 privies during the year. On the other hand, 40 privies were built during the year in connection with new houses for which sewers were not available. The net number of privies thus abandoned during 1911 was 664.

The Virginia Avenue sewer, a very large trunk, the construction of which constituted an engineering feat of no mean proportions, is now nearing completion. It is estimated that this sewer, with its tributaries, will reach at least 1,000 houses. Other sewers now under construction will reach at least 500 houses in other sections of the city. As soon as all these sewers become available, connections will be ordered, thus doing away in the near future with at least 1,500 privies. With the 664 abandoned during 1911, we will thus have in a very short while over 2,000 privies less than at the beginning of 1911. The total number remaining will then be, in round numbers, about 1,000 against 3,500 in 1909. That this will have a most decided influence upon the prevalence of typhoid fever in Richmond cannot be questioned, although, as I have repeatedly stated, we cannot look for the best results until every privy has been supplanted by a water closet.

Along with sewer extensions, water service is also being extended. The abandonment of shallow wells (at present a lamentable necessity in certain sections) which will thus become possible will also add to the success of our work in connection with typhoid fever.

FUMIGATION.

The report of the Fumigator shows that 1,368 premises (4,150 rooms) were fumigated during the year. The status of terminal disinfection (that is, disinfection after recovery or death of a case of contagious disease) is to-day somewhat uncertain. In the popular mind it is the greatest of all measures of protection against infectious diseases. Sanitarians, on the other hand, are coming to regard it as of very little usefulness. The chief reason for this change of opinion is the more accurate conceptions which we now have of the means by which infectious diseases are usually spread. We now know that it is persons, and not objects, which constitute the source of danger—persons who have the disease, those who have recently recovered but still harbor the germs, and persons who have become carriers.

Once the germs of most infectious diseases have left the body, they proceed rapidly to die off. In the ordinary sick-room, after recovery of a case there are few living organisms left to be killed, and those which may still be living are greatly reduced in virulence. Some very eminent sanitarians have given up terminal disinfection after acute infectious diseases, and the results seem to bear out their claims that the number of secondary cases in their communities has not increased in consequence.

So great, however, is the confidence which the public has in the measure that it is probably better to continue to practise it until more proof of its being useless has been brought forward. Meanwhile the people must be taught the real facts in the case, especially must they be taught that the really useful measures of disinfection are those carried on while the case is ill, measures applied more particularly to the excretions of the patient.

While the value of fumigation after recovery or death from most acute contagious diseases is very questionable, there is probably considerable good to be accomplished by thorough disinfection of rooms which have been occupied by a consumptive, especially if he has been careless, if the room does not receive an abundance of sunlight and if it is to be occupied very soon again. Even under such circumstances, thorough cleaning, sunning, airing and repapering are measures far to be preferred to mere fumigation, though no harm can be done by doing all.

The Richmond Health Department fumigates regularly after diphtheria, scarlet fever, smallpox and tuberculosis. In other diseases, fumigation is done only on special request. In 1911 nearly one-half of the premises, and over one-half of the rooms fumigated had been occupied by cases of tuberculosis, and this disease, as stated above, is one in which the measure is still regarded as having some degree of uefulness.

Our Fumigator, Mr. Jas. F. Waller, has been connected with the Richmond Health Department longer than any other officer at the present time.

Not only is his work of fumigation well done but his familiarity with many important matters makes him one of our most valued officers.

EDUCATIONAL WORK.

During 1911 public lectures were given by the Chief Health Officer, the Medical Inspector and the City Bacteriologist on a number of occasions. Educational leaflets of several kinds were issued.

Decidedly the most useful effort along educational lines made by the Health Department during the year was the exhibit at the State Fair in October. This was undertaken on the suggestion of Dr. M. D. Hoge, Jr., one of the members of the Board of Health. The State Fair Association gave us space in the main building without charge. Although worked up on very short notice, the exhibit was a creditable one. Among the features were cards giving important and striking maxims relating to public health, charts showing the geographical and seasonal distribution of our most important contagious diseases, specimens of bacteria of various kinds, drawings showing the various procedures in connection with bacteriological diagnosis, photographs of dairies, exhibiting conditions when we started dairy inspection and at the present time, and charts and tables showing the general work of the Richmond Health Department and the cost of running it. Thousands of copies of two pamphlets, especially prepared for the occasion, were distributed. One of these was a "Summary of the Work of the Richmond Health Department"; the other was "The Richmond Health Department as a Financial Asset."

Two simple features of the exhibit attracted a great deal of attention. A jar of horse manure was exhibited in which were larvæ (maggots), pupæ and adult house flies. Many of these hatched daily duing the week, the specimen having been collected at such time as to insure this result. Regular visitors would return to our booth each day to take a census of the flies that had hatched since the day before.

Another jar showed the process of mosquito breeding in standing water. This specimen also was timed to show the process actually going on.

In connection with these two specimens it was astounding to see the number of well educated persons who, in spite of all that has been published on the subject in newspapers and magazines, appeared to know nothing of the way in which flies and mosquitoes breed, and it was interesting to see their incredulity give rise to understanding when they were convinced that flies actually exist first as maggots and mosquitoes as "wrigglers." This one feature of our exhibit will make it far easier in the future to get the co-operation of the people in our efforts to exterminate flies and mosquitoes.

During the week of October 9-14 thousands of persons visited our exhibit. While I had hoped that it might attract some attention, I had no expectation of its being the success that it actually tur ed out to be, as it was hardly to be expected that the holiday crowds would turn aside from throwing confetti and gazing on snake eaters and trained fleas long enough to consider any really serious subject. But our booth was crowded every day, and on every hand the greatest interest was shown. The various officers of the Health Department were on duty as demonstrators every day.

After seeing the many ways in which the Richmond Health Department is protecting the people, our visitors universally expressed themselves as surprised that all this was done at so small a cost. Several charts and diagrams showed that the average cost of the Health Department for the past five years had been 26.5 cents per capita, and that out of every dollar expended for running the city government the Health Department received 1.3 cents.

CONCLUSION.

In concluding this report I may repeat that from many points of view the year 1911 was the most successful in the history of the Richmond Health Department. The year closed a full five-year period since the reorganization of the Department, and during ths period the death rate from typhoid fever, malarial fever, diphtheria, scarlet fever and tuberculosis was very greatly below the rates ever before recorded in Richmond. This can scarcely be mere coincidence, as the work of the Department has been especially directed against these diseases.

As at the end of each year, the satisfaction with which we can look back to what has been accomplished is accompanied with a feeling of disappointment that lack of facilities has prevented the work from being even better. It is not altogether a comfortable feeling to realize that the Health Department could easily have conferred far greater benefits if we had been given all that we asked for. That more good was not done has not been due to limitations in the science of sanitation not to our having exhausted our knowledge of this science. On the whole, however, considering the fact that our Department, as at present organized, is only five years old and that our people have the reputation of being most conservative, we have received liberal support. If the small additional appropriations which have been asked for this year are granted, I am confident that 1912 will show much new work of value to our own community and that, as a further result of some of the researches which we purpose making, valuable contributions will be made to the general fund of knowledge in connection with the prevention of certain diseases, especially in connection with infant mortality.

What has been accomplished has not been the work of any one man. All the officers of the Department have contributed their share to the general results, and, with few exceptions, they have also evinced the strongest interest in the general work of the Department and have taken a broad conception of their duties as public officers.

I must once more express my appreciation of the perfect harmony existing between the Board of Health and the Chief Health Officer. We have now worked together for over five and a half years, and during that entire time there has never been any friction. Such differences of opinion as have arisen have served but to awaken a keener interest than would otherwise have existed and to insure thorough investigation into all aspects of the question. I believe that, in the earnestness of its officers and in the excellent feeling prevailing among themselves, as well as between them and the members of the Board of Health, the Richmond Health Department stands as a model in our city government.

Respectfully submitted,

E. C. LEVY,
Chief Health Officer.

FINANCIAL STATEMENT—SUMMARY.

Account.	Appropriation.	Expended.	Balance.
Payroll	$23,325 00	$23,231 40	$ 93 60
Expense	4,650 00	3,981 01	668 99
Sanitary improvement of milk supply	4,000 00	3,901 50	98 50
Special vaccination	4,350 00*	4,342 82	7 18
Tuberculosis campaign	3,650 00*	3,486 45	163 55
Educational campaign	500 00	368 10	131 90
Total	$40,475 00	$39,311 28	$1,163 72

Total appropriations as above		$40,475 00
Reimbursements:		
Unexpended balances as above	$1,163 72	
Food permits	774 00	
For maintenance of a case of smallpox for Henrico county	37 75	
Total reimbursements		$ 1,975 47
Net cost of maintenance of the Health Department for the year 1911		$38,499 53

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* $350.00 transferred from tuberculosis campaign to special vaccination.

Pay Roll.

Chief Health Officer	$3,000 00 per annum	$3,000 00
Medical Inspector	1,500 00 per annum	1,500 00
*Registrar of Vital Statistics	1,200 00 per annum	1,150 00
Clerk	900 00 per annum	900 00
Bacteriologist	900 00 per annum	900 00
Fumigator	900 00 per annum	900 00
Stenographer	600 00 per annum	600 00
†Inspector of Plumbing	1,400 00 per annum	1,399 93
†Assistant Inspector of Plumbing	1,000 00 per annum	999 85
*Food Inspector	900 00 per annum	867 50
Assistant Food Inspector	900 00 per annum	900 00
Sanitary Officer, 1st District	900 00 per annum	900 00
Sanitary Officer, 2d District	900 00 per annum	900 00
Sanitary Officer, 3d District	900 00 per annum	900 00
Sanitary Officer, 4th District	900 00 per annum	900 00
‡Sanitary Officer, 5th District	900 00 per annum	225 00
District Physician, 1st District	900 00 per annum	900 00
District Physician, 2d District	900 00 per annum	889 12
District Physician, 3d District	900 00 per annum	900 00
District Physician, 4th District	900 00 per annum	900 00
District Physician, 5th District	900 00 per annum	900 00
District Physician, 6th District	900 00 per annum	900 00
District Physician, 7th District	900 00 per annum	900 00
Total disbursements for pay roll		$23,231 40

Expense.

Advertising	$ 19 05
Badges for sanitary officers	5 86
Buggy	145 00
Binding and ruling	63 85
Board for horse	231 30
Directory	6 00
Dr. Lipscomb, for services in connection with diphtheria	134 00
Drayage, freight and express	75 58
Electricity (light)	53 12
Electrotypes	6 20
Extra sanitary officers	300 00
Extra stenographer	25 00
Furniture and fixtures	19 50
Laboratory fixtures	28 60
Laboratory supplies	133 35
Multigraph supplies	35

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*Loss of time in changing employees.

†Adjustment of fractional amount neglected on final payment.

‡Position created by ordinance of September 16, 1911.

Physicians outfit boxes	6 99	
Postage	288 52	
Printing	315 35	
Repairs to buggy and harness and shoeing horse	70 10	
Repairs to night soil dump	8 00	
Repairs to typewriters	30 80	
Stationery	149 75	
Telephones	135 00	
Towels and soap supply	11 00	
Travelling expenses of C. H. O. to Havana, Cuba	150 00	
Travelling expenses of plumbing inspector to Milwaukee	75 00	
Travelling expenses of bacteriologist to Washington	15 00	
Wood alcohol and peppermint	16 00	
Infant work:		
Hand bags for use of nurses	4 40	
Instruments, scales, thermometers, etc	6 85	
Salary of nurses	1,451 51	
Total disbursements for expense		$3,981 01

Sanitary Improvement of Milk Supply.

Bacteriological examination of milk	$ 600 00	
Board of horse	242 00	
Help in milk laboratory	215 00	
Repairs to bicycle	12 25	
Repairs to buggy and harness and shoeing horse	77 15	
Services of dairy inspector	1,100 00	
Services of assistant dairy inspector	900 00	
Travelling expenses of dairy inspector	755 10	
Total disbursements for sanitary improvement of milk supply		$3,901 50

Special Vaccination.

Diphtheria antitoxin	$ 959 15	
Dr. I. Curd, physician at smallpox hospital	660 84	
Dr. P. D. Lipscomb, services as intubator	225 00	
Dr. W. J. West, services as diagnostician	233 00	
Food supplies at smallpox hospital	289 65	
Formaldehyde and permanganate of potash	57 34	
Fuel at smallpox hospital	8 45	
Guard and help at smallpox hospital	482 13	
Household supplies at smallpox hospital	7 55	
Repairs to buggy and harnest and shoeing horse	18 88	
Telephone	76 00	
Vaccine virus	588 55	
Vaccinators	736 28	
Total disbursements for special vaccination		$4,342 82

Tuberculosis Campaign.

Bags and boxes	$ 5 54	
Board of horse	130 43	
Disinfectants	459 20	
Drugs for dispensaries	187 63	
Electricity (lights)	12 00	
Fuel for dispensaries	31 30	
Instruments	14 15	
Janitor hire	123 25	
Milk	160 00	
Paper napkins	65 00	
Printing	6 10	
Rent of Third street dispensary	240 00	
Repairs at dispensaries	19 85	
Services of chiefs of clinic	720 00	
Sputum cups and holders	25 00	
Supplies for dispensaries	15 00	
Instructive Visiting Nurse Association	1,272 00	
Total disbursements for tuberculosis campaign		$3,486 45

Educational Campaign.

Addressograph supplies	$ 1 05	
Books	10 44	
Expenses of exhibit at Virginia State Fair	302 94	
Photo plates	3 67	
Postage	50 00	
Total disbursements for educational campaign		$ 368 10

E. L. HASKER,
Registrar.

TABLES

AND

SUBSIDIARY REPORTS

TABLE

Showing Number of Marriage Licenses

MONTH	1901		1902		1903		1904	
	White	Colored	White	Colored	White	Colored	White	Colored
January	39	18	46	22	29	24	22	15
February	35	29	24	22	45	22	35	32
March	24	24	36	28	17	24	25	32
First Quarter	98	71	116	72	91	70	82	79
April	62	39	65	50	71	47	57	28
May	27	26	30	29	23	31	34	18
June	56	36	56	40	67	42	65	39
Second Quarter	145	101	151	119	161	120	156	85
July	38	36	36	34	36	30	40	30
August	34	27	27	32	35	25	30	37
September	37	36	52	32	42	44	44	42
Third Quarter	109	99	115	98	113	99	114	109
October	68	35	64	35	60	40	62	38
November	40	31	84	45	57	40	58	30
December	66	42	74	62	64	45	61	51
Fourth Quarter	174	108	222	142	181	125	181	119
Total	526	379	604	431	546	414	533	392
Yearly totals	905		1,035		960		925	

No. 1.

Issued 1901 to 1911, Inclusive.

1905		1906		1907		1908		1909		1910		1911	
White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
41	31	35	24	41	24	44	34	37	28	42	30	52	42
31	18	41	32	40	27	43	22	45	51	42	36	53	45
35	18	22	29	35	29	34	24	37	72	50	54	37	35
107	67	98	85	116	80	121	80	119	151	134	120	142	122
56	41	73	46	71	56	78	57	79	71	68	62	84	59
32	27	20	26	41	32	35	28	36	27	54	41	35	47
69	38	62	45	76	47	80	50	54	57	80	82	72	49
157	106	155	117	188	135	193	135	169	155	202	185	191	155
40	31	36	23	52	39	32	47	49	45	55	54	51	53
46	42	26	32	36	37	31	34	40	40	48	49	58	44
49	31	38	39	60	43	44	51	45	54	58	64	60	46
135	104	100	94	148	119	107	132	154	139	161	167	169	143
64	30	56	35	78	53	63	35	64	41	84	57	90	58
75	39	67	36	91	41	59	49	68	60	88	78	87	53
69	53	98	65	70	67	71	77	91	73	81	69	101	90
208	122	221	136	239	161	193	161	223	174	253	204	278	211
607	399	574	432	691	495	614	508	665	619	750	676	780	681
1,006		1,006		1 186		1,122		1,284		1,426		1,411	

TABLE No. 2.

Births Reported During 1911, with Sex and Color.

MONTH	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
January	64	58	41	44	105	102	207
February	88	81	42	50	130	131	261
March	84	63	71	45	155	108	263
April	75	54	33	50	108	104	212
May	80	76	46	47	126	123	249
June	58	67	53	50	111	117	228
July	86	76	49	39	135	115	250
August	96	73	52	39	148	112	260
September	75	82	40	49	115	131	246
October	85	76	45	35	130	111	241
November	70	77	36	46	106	123	229
December	107	86	53	48	160	134	294
Total	968	869	561	542	1,529	1,411	2,940

TABLE No. 3.

Attendants at Birth

BY WHOM REPORTED	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
Physician	754	682	131	134	885	816	1,701
Midwife	214	187	430	408	644	595	1,239
Total	968	869	561	542	1,529	1,411	2,940

TABLE No. 4.

Still-Births by Months.

MONTH	White	Colored	Total
January	12	14	26
February	9	10	19
March	4	13	17
April	10	16	26
May	3	16	19
June	2	26	28
July	4	17	21
August	7	19	26
September	6	16	22
October	14	12	26
November	11	13	24
December	5	14	19
Total	87	186	273

TABLE No. 5.

Still-Births, by Years, since 1902.

YEAR	WHITE	COLORED	TOTAL
1902	87	142	229
1903	70	161	231
1904	74	147	221
1905	59	130	189
1906	70	130	200
1907	90	169	259
1908	109	165	274
1909	76	195	271
1910	95	189	284
1911	87	186	273

TABLE No. 6.

Cases Examined by Coroner and Assistant Coroner.

SEX	White	Colored	Unknown Color	Total
Male	89	159	1	249
Female	41	119	0	160
Unknown Sex	0	0	0	0
Total	130	278	1	409

	White	Colored	Unknown Color	Total
Fetuses	0	0	1	1
Inquests	8	19	0	27

Still-Births Viewed by Coroner.

REX	White	Colored	Unknown Color	Tolal
Male	2	20	1	23
Female	1	16	0	17
Total	3	36	1	40

TABLE. No. 7.

Deaths for the Year Ending December 31, 1911, Classified by Color and Sex, and Whether Residents or Nonresidents of Richmond.

SEX	Residents of Richmond			Nonresidents of Richmond			Total Number of Deaths, Including Nonresidents		
	White	Col'd	Total	White	Col'd	Total	White	Col'd	Total
Male	636	612	1,248	114	46	160	750	658	1,408
Female	556	647	1 203	71	36	107	627	683	1,310
Total	1,192	1,259	2,451	185	82	267	1,377	1,341	2,718

TABLE No. 8.

Giving Death Rate, with Nonresidents Included and Excluded.

COLOR	Population (U. S. Bureau of the Census.)	Actual Number of Deaths		Deate Rate per 1,000	
		Non-residents Included	Non-residents Excluded	Non-residents Included	Non-residents Excluded
White	81,565	1,377	1,192	16.88	14.61
Colored	47,726	1,341	1,259	28.10	26 38
Total	129,291	2,718	2,451	21.02	18 96

TABLE No. 9.

POPULATION OF RICHNOND, VIRGINIA, 1870–1912.

(Official Estimates of the U. S. Bureau of the Census.)

YEAR	White	Col'd	Total	YEAR	White	Col'ed	Total
1870*	27 928	23,110	51,038	1890*	49,034	32,354	81,388
1871	28,712	23,582	52 294	1891	49,410	32,344	81,754
1872	29,496	24,054	53,550	1892	49,786	32,334	82,120
1873	30,280	24 526	54,806	1893	50,162	32,324	82,486
1874	31,064	24,998	56,062	1894	50,538	32 314	82,852
1875	31,848	25 470	57,318	1895	50 914	32,304	83,218
1876	32,632	25 942	58,574	1896	51,290	32 294	83 584
1877	33,416	26.414	59,830	1897	51,666	32 284	83,950
1878	34,200	26,886	61,086	1898	52,042	32,274	84,316
1879	34,984	27,358	62,342	1899	52,418	32,264	84,682
1880*	35,765	27.835	63,600	1900†	52 879	32 285	85,164
1881	37.092	28 287	65,379	1901	53,850	32,690	86,540
1882	38.419	28,739	67,158	1902	54.821	33,095	87,916
1883	39.746	29,191	68,937	1903	55,792	33 500	89,292
1884	41,073	29,643	70,716	1904	56,763	33,905	90,668
1885	42 400	30,095	72,495	1905	57,734	34,310	92,044
1886	43,727	30,547	74,274	1906	58.706	34,715	93,421
1887	45,054	30,999	76,053	1907‡	70,429	42 984	113.413
1888	46 381	31,451	77,832	1908	71,401	43,389	114 790
1889	47,708	31,903	79,611	1909	72,373	43,794	116,167
				1910†‡	80,593	47,321	127,914
				1911	81.565	47,726	129 291
				1912	82 537	48,131	130,668

*Census year.

†The population given for the Census years 1900 and 1910 are midyear (July 1st) estimates. The actual Census of 1900 gave a population of 85,050; that of 1910, a population of 127,628 as of June 1st and April 15th, respectively. The midyear estimates for these years will be used by the Census Bureau in calculating its official vital statistics rates for these two census years.

‡Annexation added a population of 18,615 on December 6, 1906, and a population of 10,370 on April 15, 1910.

Note. The official estimate of population for 1912 is added to the above table to facilitate the calculation of rates for a series of years in which that year is included.

TABLE No. 10.

Civil Condition of Decedents.

CIVIL CONDITION	WHITE		COLORED		Total
	Male	Female	Male	Female	
Single	367	235	366	323	1,291
Married	259	187	215	179	840
Widowed	111	202	69	178	560
Divorced	2	2	2	3	9
Unknown	11	1	6	0	18
Total	750	627	658	683	2,718

TABLE No. 11.

Nativity of Decedents.

NATIVITY	WHITE		COLORED		Total
	Male	Female	Male	Female	
Virginia	593	514	575	627	2 309
Other parts of United States	74	68	66	51	259
Austria	2	0	0	0	2
Belgium	1	0	0	0	1
Canada	1	1	0	0	2
England	4	1	0	0	5
Europe (country not given)	0	1	0	0	1
Germany	14	13	0	0	27
Greece	1	0	0	0	1
Ireland	19	11	0	0	30
Italy	6	1	0	0	7
Norway	1	0	0	0	1
Poland	2	0	0	0	2
Prussia	0	1	0	0	1
Russia	7	2	0	0	9
Scotland	1	1	0	0	2
Sweden	1	0	0	0	1
Syria	2	1	0	0	3
Wales	1	0	0	0	1
West Indies	0	2	0	0	2
Unknown	20	10	17	5	52
Total	750	627	658	683	2,718

TABLE No. 13.

By Whom Certified.

BY WHOM CERTIFIED	White		Colored		Total
	Male	Female	Male	Female	
Physician	667	588	533	584	2,372
Coroner	79	38	122	96	335
Board of Health	4	1	3	3	11
Total	750	627	658	683	2,718

TABLE No. 14.

Giving Mortality for Each Month of the Year, and the Relative Mortality of Each Month Reduced to a Standard of 100.

MONTH	White		Colored		Total	Relative Mortality*
	Male	Female	Male	Female		
January	62	45	55	59	221	96
February	57	53	46	42	198	95
March	55	54	69	71	249	108
April	58	48	55	45	206	92
May	57	54	55	64	230	100
June	83	56	64	47	250	112
July	74	62	60	77	273	118
August	65	54	51	50	220	95
September	47	46	48	57	198	89
October	63	49	60	57	229	99
November	60	58	50	60	228	102
December	69	48	45	54	216	94
Total	750	627	658	683	2718	

*The relative mortality for each month as calculated in this table takes into account the actual number of days in each month.

TABLE No. 15.

Showing the Number of Deaths, Monthly, of the Two Races, from 1902 to 1911, Inclusive.

MONTH	1902		1903		1904		1905		1906		1907		1908		1909		1910		1911	
	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
January	72	96	81	93	78	73	70	55	78	77	117	135	126	142	95	90	163	131	107	114
February	54	81	59	80	75	97	77	94	71	76	105	121	107	128	87	89	124	108	110	88
March	62	76	99	84	102	113	81	92	83	81	117	141	110	113	110	128	113	105	109	140
April	73	84	87	93	72	79	59	82	76	93	112	113	97	90	102	111	108	110	106	100
May	62	79	82	119	64	82	47	64	78	78	106	101	111	107	110	105	123	128	111	119
June	107	101	83	103	73	114	98	109	97	110	128	131	113	127	123	90	143	146	139	111
July	93	116	71	107	98	106	77	92	87	92	115	141	113	106	115	114	129	129	136	137
August	64	83	63	60	62	66	58	65	70	83	89	97	112	93	77	99	91	124	119	101
September	82	89	64	77	68	76	66	58	88	71	97	90	91	75	73	82	116	98	93	105
October	72	78	64	65	62	83	67	51	79	91	102	113	92	78	97	107	95	113	112	117
November	62	78	48	89	55	64	60	62	73	82	76	79	91	82	100	98	116	115	118	110
December	72	82	83	81	49	65	60	73	111	83	125	101	99	83	111	91	150	109	117	99
Total	875	1,043	884	1,051	858	1,018	820	897	991	1,017	1,289	1,363	1,262	1 224	1,200	1,204	1,471	1,416	1,377	1,341
Grand Total	1,918*		1.935*		1,876*		1,717*		2,008†		2,652†		2,486†		2,404†		2,887†		2,718†	

*Non-residents not included.

†Non-residents (178 in 1906; 155 in 1907; 167 in 1908; 219 in 1909; 331 in 1910 and 267 in 1911). Eliminating these, as in previous years, the total deaths were 1,830 in 1906; 2,497 in 1907; 2,319 in 1908; 2,185 in 1909; 2,556 in 1910 and 2,451 in 1911.

TABLE No. 16.

Deaths for the Year Ending December 31, 1911—Classified by Causes, Months, Color and Sex.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
I.—GENERAL DISEASES																			
1. Typhoid fever	1	.	1	...	...	3	5	3	4	2	2	2	9	7	16	1	6	7	23
4. Malaria	.	...	...	...	...	...	...	.	1	..	...	..	.	..	..	...	1	1	1
6. Measles	...	1	...	1	3	3	2	1	1	..	...	..	8	...	8	...	4	4	12
7. Scarlet fever	...	.	1		...	...	.	..	..	1	...	1	..	2	2	...	1	1	3
8. Whooping cough	3	3	9	4	6	6	10	6	2	2	...	...	13	18	26	9	16	25	51
9. Diphtheria and croup	2	..	1	1	...	..	1	1	1	2	4	...	6	6	12	...	1	1	13
10. Influenza	6	8	5	7	..	1	..	...	...	...	2	3	8	6	14	6	12	18	32
13. Cholera nostras	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	..	..	..	1
14. Dysentery	1	...	...	1	2	6	5	6	...	3	1	1	9	4	13	8	10	18	31
18. Erysipelas	1	...	...	2	...	...	..	..	..	...	...	...	1	1	2	...	1	1	3
20 Purulent infection and septicemia	1	.	..	2	..	1	...	1	..	..	...	..	..	...	..	8	2	5	5
24. Tetanus	1	1	1	...	1	1	...	3	1	2	.	1	2	1	3	7	2	9	12
26. Pellagra	1	..	1	...	1	1	2	1	1	2	2	..	2	7	9	1	2	3	12
28. Tuberculosis of the lungs	25	14	26	12	28	26	25	24	20	23	28	22	60	45	105	77	86	163	268
29. Acute miliary tuberculosis	...		...	..	...	...	...	...	1	1	...	1	..	1	1	2	...	2	3
30. Tubercular meningitis	..	2	2	9	4	2	1	1	2	...	...	...	10	6	16	5	2	7	23
31. Abdominal tuberculosis	2	...	1	...	2	2	2	2	2	1	3	1	3	8	6	5	7	12	18
32. Pott's disease	...	...	1		...	1	..	...	1	1	...	...	..	...	...	4	...	4	4
33. White swellings	..	...	...	...	...		...	...	...	...	1	...	..	...	..	1	...	1	1
34. Tuberculosis of other organs	...	...	1	..	...	1	..	1	...	1	1	1	3	...	3	3	..	3	6
36. Rickets	..	...	...	..	...	...	...	..	..	..	1	..	..	...	...	...	1	1	1
37. Syphilis	2	2	1	6	1	4	4	8	5	2	8	4	10	8	13	13	11	24	37
38. Gonococcus infection	...	...	1	...	...	...	...	...	...	...	...	...	..	..	...	..	1	1	1
39. Cancer of the buccal cavity	...	...		...	1	1	...	1	..	1	1	...	1	2	3	2	0	2	5
40. Cancer of the stomach and liver	4	1	...	2	4	4	...	1	3	1	4	4	10	15	25	1	2	3	28
41. Cancer of the peritoneum, intestines and rectum	...	2	2	1	2	1	2	4	3	2	...	3	3	8	11	3	8	11	22
42. Cancer of the female genital organs	...	1	1	3	4	4	2	5	2	8	1	4	...	16	16	..	13	13	29
43. Cancer of the breast	...	...	1	2	2	...	...	...	1	1	..	2	...	8	8	...	1	1	9
44. Cancer of the skin	...	...	...	..	..	...	...	...	...	...	1	...	...	1	1	...	...	...	1
45. Cancer of other or unspecified organs	..	3	2	1	6	3	1	8	1	...	1	1	10	6	16	2	1	3	19

46. Other tumors (female genitas excepted	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1	...	...	...	1
47. Acute articular rheumatism	4	1	1	1	4	...	1	...	...	1	1	...	4	4	8	2	4	6	14
48. Chronic rheumatism and gout	...	...	...	2	...	1	1	...	...	...	1	...	1	3	4	1	0	1	5
50. Diabetes	3	2	3	2	1	1	1	4	2	1	1	3	12	6	18	2	4	6	24
51. Exophthalmic goitre	...	...	...	...	...	1	...	1	...	...	1	1	1	2	3	...	1	1	4
52. Addison's disease	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1
53. Leukemia	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	1
54. Anemia, Chlorosis	1	...	1	...	...	1	...	...	1	...	...	1	2	1	3	...	2	2	5
55. Other general diseases	1	2	...	...	...	...	...	1	1	...	1	...	3	1	4	2	0	2	6
56. Alcoholism (acute or chronic)	1	1	3	1	1	2	...	...	...	1	1	1	12	...	12	...	...	...	12
59. Other chronic poisonings	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1
II.—DISEASES OF THE NERVOUS SYSTEM																			
60. Encephalitis	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	1
61. Simple meningitis	1	...	2	1	1	2	3	...	2	1	...	...	4	3	7	4	2	6	13
62. Locomotor ataxia	...	...	2	...	...	...	...	...	...	1	1	...	1	3	4	...	...	...	4
63. Other diseases of the spinal cord	1	...	...	...	...	1	1	...	...	...	2	3	2	1	3	3	2	5	8
64. Cerebral hemorrage, apoplexy	25	17	14	11	15	9	25	10	13	21	15	16	56	41	97	41	53	94	191
65. Softening of the brain	1	...	1	1	1	1	...	...	...	...	1	...	3	2	5	1	...	1	6
66. Paralysis without specified cause	2	1	...	2	2	1	1	1	...	...	1	...	3	4	7	3	1	4	11
67. General paralysis of the insane	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	1
68. Other forms of mental alienation	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	2	0	1	2
69. Epilepsy	2	...	...	...	...	2	1	1	1	1	...	1	2	1	3	5	1	6	9
71. Convulsions of infants	2	2	3	2	2	...	2	2	2	2	5	...	3	2	5	7	12	19	24
73. Neuralgia and Neuritis	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	1
74. Other diseases of the nervous system	1	...	1	2	3	2	...	...	1	1	1	4	7	6	13	2	1	3	16
76. Diseases of the ears	...	...	1	...	...	...	...	...	...	...	...	1	1	1	2	...	...	...	2
III.—DISEASES OF THE CIRCULATORY SYSTEM																			
77. Pericarditis	...	...	...	...	...	...	1	1	...	...	...	...	...	1	1	...	1	1	2
78. Acute endocarditis	1	6	4	1	1	...	1	4	1	2	3	2	4	4	8	9	9	18	26
79. Organic diseases of the heart	16	14	17	11	16	18	18	13	17	19	34	24	76	53	129	36	52	88	217
80. Angina pectoria	1	...	...	...	2	...	...	...	...	1	1	1	3	2	5	1	...	1	6
81. Diseases of the arteries, atheroma, aneurism, etc.	3	2	...	...	3	1	3	...	3	...	3	4	10	2	12	5	5	10	22
82. Embolism and thrombosis	1	...	...	1	...	1	...	...	1	...	...	...	4	...	4	...	...	...	4
83. Diseases of the veins	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1	1
IV.—DISEASES OF THE RESPIRATORY SYSTEM																			
87. Diseases of the larynx	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1
89. Acute bronchitis	6	2	4	3	2	1	...	...	...	2	...	2	3	...	3	12	7	19	22
90. Chronic bronchitis	3	4	...	1	1	2	2	...	...	2	2	...	4	2	6	4	7	11	17
91. Bronchopneumonia	11	9	13	13	6	5	3	2	4	3	6	8	11	17	28	21	34	55	83
92. Pheumonia	16	14	21	14	11	2	3	8	...	8	10	8	19	22	41	50	24	74	115
93. Pleurisy	...	...	...	2	1	...	1	...	...	1	2	...	3	2	5	...	2	2	7

TABLE No. 16.—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
94. Pulmonary congestion, pulmonary apoplexy	4	4	9	1	3	2	2	3	2	...	4	3	4	5	9	15	13	28	37
96. Asthma	...	...	...	1	...	...	...	...	...	...	3	...	...	...	...	2	2	4	4
98. Other diseases of the respiratory system (tuberculosis excepted)	...	...	...	...	1	1	...	3	1	...	...	...	1	...	1	4	1	5	6
V.—DISEASES OF THE DIGESTIVE SYSTEM																			
99. Diseases of the mouth and adnexa	1	...	...	...	...	...	...	3	...	...	...	...	3	...	3	1	...	1	4
100. Diseases of the pharynx	1	1	1	1	...	...	...	...	...	...	...	1	2	1	3	...	2	2	5
102. Ulcer of the stomach	...	...	2	...	2	1	2	1	...	1	...	1	4	2	6	2	2	4	10
103. Other diseases of the stomach (cancer excepted)	3	4	5	2	4	2	4	2	1	3	1	4	6	9	15	7	13	20	35
104. Diarrhea and enteritis (under 2 years	1	3	...	1	6	53	45	24	31	26	3	3	52	35	87	65	44	109	196
105. Diarrhea and enteritis (2 years and over)	3	1	1	1	2	1	7	3	2	2	2	4	6	11	17	2	10	12	29
108. Appendicitis and typhlitis	...	...	1	1	1	4	2	1	2	2	1	1	6	5	11	3	2	5	16
109. Hernia, intestinal obstruction	2	4	2	3	...	3	2	3	3	...	...	3	9	8	17	3	5	8	25
113. Cirrhosis of the liver	1	...	...	4	3	...	3	1	1	1	3	...	10	5	15	1	1	2	17
114. Biliary calculi	...	1	...	...	1	...	...	1	...	...	1	1	1	4	5	...	...		5
115. Other diseases of the liver	...	...	...	...	2	...	3	2	...	...	3	...	4	2	6	2	2	4	10
117. Simple peritonitis (nonpuerperal)	1	...	2	1	1	...	...	2	...	...	...	...	1	1	2	3	2	5	7
VI.—DISEASES OF THE GENITO-URINARY SYSTEM																			
119. Acute nephritis	1	2	6	2	3	2	1	2	1	2	5	3	3	4	7	10	13	23	30
120. Bright's disease	15	22	25	18	16	13	18	9	9	23	20	21	75	50	125	51	33	84	209
122. Other diseases of the kidneys and adnexa	1	...	3	1	...	...	1	1	...	...	1	1	2	6	8	...	1	1	9
123. Calculi of the urinary passages	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...	1
124. Diseases of the bladder	1	...	...	...	1	...	...	1	...	1	...	...	1	1	2	2	...	2	4
125. Diseases of the uretha, urinary absces, etc.	1	...	1	...	...	...	...	1	1	1	...	1	2	...	2	3	1	4	6

126. Diseases of the prostate	...	...	...	...	1	1	...	2	1	...	...	1	4	...	4	2	...	2	6
127. Nonvenereal diseases of the male genital organs	..	1	...	...	...	...	...	...	.	.	...	...	...	...	...	1	...	1	1
128. Uterine hemorrhage (nonpuerperal)		...	.	1		..	...	...	...	...	..	1	.	2	2	.	...	.	2
129. Uterine tumor (noncancerous)	...	...	...	1	2	...	2	.	1	1	1	1	...	1	1	...	8	8	9
131. Cysts and other tumors of the ovary	...			...	1	..	...	...	...	...	..	...	...	...	...	...	1	1	1
132. Other (nonvenereal) diseases of female genital organs	1	2	2	2	.	1	1	2	...	...	1	...	..	5	5		7	7	12
VII.—THE PUERPERAL STATE																			
134. Accidents of pregnancy	..	...	.	..	2	1	...	...	1	...	..		.	1	1	...	3	3	4
135. Puerperal hemorrhage	.	.		...		1	.	...	.		1	...	...	1	1	.	1	1	2
136. Other accidents of labor	..	...		...	...	...		.	...	1	1	1	.	...		.	3	3	3
137. Puerperal septicemia	...	.	1	3	1	1	1	1	...	1	1	2	.	8	8	...	4	4	12
138. Puerperal albuminuria and convulsions	1	2	1	..	4	1	...	2	...	..	2	2	...	6	8	...	7	7	15
140. Following childbirth (not otherwise dafined)	.	1	.	...			...	...	...	...		...	...	1	1	...	.	...	1
VIII.—DISEASES OF THE SKIN																			
142. Gangrene	...	1	...	...	1	.	1	2	...	1	.	...	1	2	3	3	...	3	6
143. Furuncle	...	.	..	1	...	...	...	1		..	.	...	1	1	2	...	.	...	2
144. Acute abscess	..	...	...	.	...	.	.	.	...	..	1	...	1		1	...	...	...	1
145. Other diseases of the skin and adnexa		1	..	..	...		...	...	...	1		...	1	1	2		...	...	2
IX.—DISEASES OF THE ORGANS OF LOCOMOTION																			
146. Diseases of the bones (tuberculosis excepted)	...	1	...	1	...		.	.	2	...	...		1	2	3	1	...	1	4
X.—MALFORMATIONS																			
150. Congenital malformations (stillbirths not included)	...	1	1	1	1	2	1	...	...	.	2	1	3	5	8	2	..	2	10
XI.—DISEASES OF EARLY INFANCY																			
151. Congenital debility, icterus, and sclerema	4	9	16	15	9	8	16	12	6	17	8	7	34	29	63	29	35	64	127
152. Other diseases peculiar to early infancy	1	2	1	1	1	1	2	...	1	1	...	3	5	3	8	5	1	6	14
XII.—OLD AGE																			
154. Senility	3	...	4	4	2	2	3	3	2	4	1	3	10	14	24	5	2	7	31

TABLE No. 16.—CONTINUED.

CAUSES OF DEATH	Months												White			Colored			Grand Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
XIII—EXTERNAL CAUSES																			
155. Suicide by poison	...	1	2	1	1	1	2	1	3	2	...	...	4	8	12	1	1	2	14
156. Suicide by asphyxia	1	2	1	...	...	...	...	...	...	...	...	1	5	...	5	...	...	...	5
158. Suicide by drowning	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1	...	...	...	1
159. Suicide by firearms	...	...	...	...	1	...	...	2	2	...	1	...	6	...	6	...	...	...	6
164. Poisoning by food	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	1	...	1	2
165. Other acute poisonings	1	...	...	...	...	...	...	2	...	...	...	...	1	1	2	...	1	1	3
166. Conflagration	1	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	1	1	2
167. Burns	3	1	...	1	1	1	1	...	...	1	2	2	2	3	5	4	4	8	13
168. Absorption of deleterious gases	1	...	...	1	...	1	1	...	...	...	2	1	3	1	4	1	2	3	7
169. Accidental drowning	1	...	2	...	1	3	2	...	...	...	1	...	4	...	4	6	...	6	10
170. Traumatism by firearms	...	...	...	1	1	...	...	...	1	1	...	...	1	1	2	...	2	2	4
171. Traumatism by cutting or piercing instruments	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	1
172. Traumatism by fall	2	3	2	3	2	...	...	...	3	4	2	1	10	9	19	2	1	3	22
174. Traumatism by machines	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
175. Traumatism by other crushing	1	1	...	2	2	1	2	2	4	1	...	2	10	2	12	6	...	6	18
176. Injuries by animals	...	...	...	...	1	...	...	...	3	...	...	...	2	...	2	2	...	2	4
177. Starvation	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	1
179. Effects of heat	...	...	...	...	1	2	10	3	...	...	...	...	3	3	6	4	6	10	16
182. Homicide by firearms	...	1	...	...	...	1	1	1	1	1	1	3	1	...	1	9	...	9	10
183. Homicide by cutting or piercing instruments	1	1	1	...	1	1	...	...	...	2	...	2	...	...	...	7	2	9	9
184. Homicide by other means	...	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	3	3	3
186. Other external violence																			
a.—Legal electrocution	1	...	...	...	...	1	...	...	...	...	1	...	1	...	1	2	...	2	3
b.—Other external violence	4	3	2	2	3	1	...	2	3	...	...	1	4	1	5	8	8	16	21
XIV.—ILL-DEFINED DISEASES																			
189. Cause of death not specified or ill-defined	3	5	4	3	7	7	6	2	7	7	4	2	12	11	23	19	15	34	57
Total	221	198	249	206	230	250	273	220	198	229	228	216	750	627	1377	658	683	1341	2718

TABLE No. 17.

*Deaths for the Year Ending December 31, 1911, Among Nonresidents.**

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
I.—GENERAL DISEASES																			
1. Typhoid fever							2	1	1	1		1	1	3	4		2	2	6
8. Whooping cough			1					1					1		1		1	1	2
9. Diphtheria and croup										1	1		2		2				2
10. Influenza	1												1		1				1
14. Dysentery						1								1	1				1
26. Pellagra	1				1									1	1		1	1	2
28. Tuberculosis of the lungs			2		5				1	2	1	1	3	1	4	6	2	8	12
30. Tuberculous meningitis				2										2	2				2
31. Abdominal tuberculosis	1					2		1				1	3		3		2	2	5
33. White swellings											1					1		1	1
34. Tuberculosis of other organs											1		1		1				1
37. Syphilis	1	1		1				1	2				2	1	3	3		3	6
39. Cancer of the buccal cavity										1						1		1	1
40. Cancer and other malignant tumors of the stomach and liver		1			2							2	3	2	5				5
41. Cancer and other malignant tumors of the peritoneum, intestines and rectum		1								1		1		1	1	1	1	2	3
42. Cancer and other malignant tumors of the female genital organs						2				1		1		2	2		2	2	4
45. Cancer and other malignant tumors of other organs or of organs not specified		1						1						1	1	1		1	2
48. Chronic rheumatism and gout						1								1	1				1
50. Diabetes		1		1	1			2				1	5	1	6				6
51. Exophthalmic goitre						1		1					1	1	2				2
52. Addison's disease			1											1	1				1
54. Anemia, chlorosis	1												1		1				1
56. Alcoholism (acute or chronic)		1	1							1			3		3				3

TABLE No. 17—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
II.—DISEASES OF THE NERVOUS SYSTEM																			
61. Simple meningitis			1				1						1	1	2				2
63. Other diseases of the spinal cord											1	2	1	1	2	1		1	3
64. Cerebral hemorrhage, apoplexy	1	2			1	1	4		1	2	1		7	2	9	2	2	4	13
74. Other diseases of the nervous system				1	2	2						1	6		6				6
76. Diseases of the ears												1		1	1				1
III. DISEASES OF THE CIRCULATORY SYSTEM																			
78. Acute endocarditis		1	1								2		2	1	3	1		1	4
79. Organic diseases of the heart		2	2	1	2		2			2	2	2	9	4	13		2	2	15
80. Angina pectoris												1		1	1				1
81. Diseases of the arteries, atheroma, aneurism, etc	1												1		1				1
IV. DISEASES OF THE RESPIRATORY SYSTEM																			
91. Bronchopneumonia	1	1									1		1	1	2		1	1	3
92. Pneumonia	3	2	3				1				1		2	3	5	4	1	5	10
94. Pulmonary congestion, pulmonary apoplexy				1													1	1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM																			
102. Ulcer of the stomach			1			1		1					3		3				3
103. Other diseases of the stomach (cancer excepted)	1												1		1				1
104. Diarrhea and enteritis (under 2 years)		1				3	1	1	4	1			8	2	10		1	1	11

106. Diarrhea and enteritis (2 years and over)	1						1							2	2				2
108. Appendicitis and typhlitis				1	1	3	2	1		1	1	1	6	3	9	1	1	2	11
109. Hernia, intestinal obstruction	2	2		2		2		2				2	7	1	8	2	2	4	12
113. Cirrhosis of the liver					1						1		2		2				2
114. Biliary calculi		1						1						2	2				2
117. Simple peritonitis (nonpuerperal)			1										1		1				1
VI. DISEASES OF THE GENITO-URINARY SYSTEM																			
119. Acute nephritis			1										1		1				1
120. Bright's disease	3	4		3	1	2	3			2	3	1	10	8	18	2	2	4	22
122. Other diseases of the kidneys and adnexa			2	1									1	2	3				3
124. Diseases of the bladder	1															1		1	1
125. Other diseases of the urethra, urinary abscess, etc			1														1	1	1
126. Diseases of the prostate						1		2				1	3		3	1		1	4
128. Uterine hemorrhage (nonpuerperal)				1								1		2	2				2
129. Uterine tumor (noncancerous)					1		2			1		1		1	1		4	4	5
131. Cysts and other tumors of the ovary					1												1	1	1
132. Other (nonvenereal) diseases of the female genital organs.				1		1		1						1	1		2	2	3
VII.—THE PUERPERAL STATE																			
134. Accidents of pregnancy					1	1								1	1		1	1	2
135. Puerperal hemorrhage											1			1	1				1
136. Other accidents of labor											1	1					2	2	2
137. Puerperal septicemia				1										1	1				1
138. Puerperal albuminuria and convulsions		1				1								2	2				2
VIII.—DISEASES OF THE SKIN																			
142. Gangrene								1		1				1	1	1		1	2
IX.—DISEASES OF THE ORGANS OF LOCOMOTION																			
146. Diseases of the bones (tuberculosis excepted)				1					1				1	1	2				2

TABLE No. 17—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
XII.—OLD AGE																			
154. Senility	...	...	1	...	...	...	1	1	...	1	...	...	...	2	2	2		2	4
VIII.—EXTERNAL CAUSES																			
155. Suicide by poison	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	1
156. Suicide by asphyxia	1	1	...	...	...	...	...	...	...	...	...	1	3		3	...	...	...	3
159. Suicide by firearms	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	1
170. Traumatism by firearms	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...		1	1	1
171. Traumatism by cutting or piercing instruments	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	1
172. Traumatism by fall	1	1	...	...	1	...	...	...	...	2	...	...	3	1	4	1	...	1	5
175. Traumatism by other crushing	...	...	...	1	1	1	1	1	1	...	...	...	1	1	2	4		4	6
176. Injuries by animals	...	...	...	...	1	...	...	...	1	...	...	...	2	...	2		...	...	2
179. Effects of heat	...	...	...	...	...	...	1	2	...	...	...	...	...	1	1	2	...	2	3
182. Homicide by firearms	...	...	...	...	...	1	...	...	1	...	1	1	1	...	1	3	...	3	4
183. Homicide by cutting or piercing instruments	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
186. Other external violence—																			
a. Legal electrocution	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	2	2
b. Other external violence	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2		2	2
XIV.—ILL-DEFINED DISEASES																			
189. Cause of death not specified or ill-defined	...		...	...	...	...	1	...	...		...	...		1	1	...	...	...	1
Total deaths from all causes among non-residents	25	26	19	20	23	28	23	22	15	21	20	25	114	71	185	46	36	82	267

*These deaths are included in Table No. 16. The deaths among residents can, therefore be obtained by deducting the number of deaths from any cause in this table from those in Table No. 16.

TABLE No. 18.

Giving Death-Rate and Per Cent. of Deaths from Different Causes.

CAUSE OF DEATH	ACTUAL NUMBER OF DEATHS			DEATH-RATE PER 1,000 LIVING.			PER CENT. OF TOTAL MORTALITY		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
I. General diseases	386	357	743	4.78	7.48	5.74	28.03	26.61	27.33
II. Diseases of the nervous system and organs of special sense	148	141	289	1.82	2.95	2.23	10.75	10.51	10.63
III. Diseases of the circulatory system	159	119	278	1.95	2.49	2.15	11 55	8.88	10.23
IV. Diseases of the respiratory system	94	198	292	1.15	4.15	2.26	6.82	14.76	10.74
V. Diseases of the digestive system	187	172	359	2.29	3.61	2.78	13.58	12.83	13.21
VI. Diseases of the genito-urinary system and its adnexa	157	133	290	1.93	2.79	2.24	11.40	9.92	10.67
VII. The puerperal state	19	18	37	.23	.38	.29	1.38	1.34	1.36
VIII. Diseases of the skin and cellular tissue	8	3	11	.10	.06	.09	.58	.22	.40
IX. Diseases of the organs of locomotion	3	1	4	.04	.02	03	.22	.08	.15
X. Malformations	8	2	10	.10	.04	.08	.58	.15	.37
XI. Early infancy	71	70	141	.87	1.47	1.09	5.16	5.22	5 19
XII. Old age	24	7	31	.29	.15	.24	1.74	.52	1.14
XIII. External causes	90	86	176	1.10	1.80	1.36	6.54	6 42	6.48
XIV. Ill-defined diseases	23	34	57	.28	.71	.44	1.67	2.54	2 10
Total deaths from all causes	1,377	1,341	2,718	16.88	28 10	21.02	100,00	100.00	100.00

TABLE No. 19.

Giving Death-Rate and Per Cent. of Deaths at Different Age Periods

AGE PERIOD	Actual Number of Deaths			Death-Rate Per 1,000 Living at All Ages			Per Cent. of Total Mortality		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
Less than one day	31	29	60	.38	.61	.46	2.25	2.16	2.21
Between one day and one week	27	32	59	.33	.67	.46	1.96	2.39	2.17
First week	58	61	119	.71	1.28	.92	4.21	4.65	4.38
2d, 3d and 4th weeks	35	40	75	.43	.84	.58	2.54	2.98	2.76
First month	93	101	194	1.14	2.12	1.50	6.75	7.53	7.14
1 to 3 months	43	63	106	.53	1.32	.82	3.12	4.70	3.90
3 to 6 months	48	65	113	.59	1.36	.87	3.49	4.85	4.16
6 to 12 months	53	68	121	.65	1.42	.94	3.85	5.07	4.45
First year	237	297	534	2.91	6.22	4.13	17.21	22.15	19.65
Second year	52	48	100	.64	1.00	.77	3.78	3.58	3.68
Third year	18	28	46	.22	.59	.36	1.31	2.09	1.69
Fourth year	15	18	33	.18	.38	.25	1.09	1.34	1.21
Fifth year	3	7	10	.04	.15	.08	.22	.52	.37
Total under 5 years	325	398	723	3.99	8.34	5.59	23.61	29.68	26.60
5 to 10 years	27	16	43	.33	.34	.33	1.96	1.19	1.58
10 to 15 years	13	16	29	.16	.34	.22	.94	1.19	1.07
15 to 20 years	33	58	91	.40	1.21	.70	2.40	4.33	3.35
20 to 25 years	62	83	145	.76	1.74	1.12	4.50	6.19	5.34
25 to 30 years	55	108	163	.67	2.26	1.26	3.99	8.05	6.00
30 to 35 years	57	72	129	.70	1.51	1.00	4.14	5.37	4.74
35 to 40 years	52	94	146	.64	1.97	1.13	3.78	7.01	5.37
40 to 45 years	51	100	151	.63	2.10	1.17	3.70	7.46	5.56
45 to 50 years	63	85	148	.77	1.78	1.15	4.57	6.34	5.44
50 to 55 years	86	87	173	1.05	1.82	1.34	6.24	6.49	6.36
55 to 60 years	74	74	148	.91	1.55	1.15	5.38	5.52	5.44
60 to 65 years	112	72	184	1.37	1.51	1.42	8.14	5.37	6.77
65 to 70 years	109	33	142	1.33	.69	1.10	7.92	2.46	5.22
70 to 75 years	96	26	122	1.18	.54	.94	6.97	1.94	4.49
75 to 80 years	78	7	85	.96	.15	.66	5.66	.52	3.13
80 to 85 years	51	6	57	.62	.13	.44	3.70	.45	2.10
85 to 90 years	30	4	34	.37	.08	.26	2.18	.30	1.25
90 to 95 years	3	1	4	.04	.02	.03	.22	.07	.15
95 to 100 years	...	...	...	...	...	...	...	...	...
100 to 105 years	...	1	1	..	.02	.01	...	.07	.04
	1377	1341	2718	16.88	28.10	21.02	100.00	100.00	100.00

TABLE No. 20.

Showing the Number of Nonresidents Buried Here, and Their Color.

	White	Colored	Total
NONRESIDENTS	458	137	595

Showing the Number of Persons Who Died Here and Were Buried Elsewhere, and Their Color.

	White	Colored	Total
TRANSIT PERMITS GRANTED	296	293	589

TABLE No. 21.

Showing the Number of Typhoid Fever Cases Reported to the Health Department, and the Number of Deaths for Each Month in 1911.

MONTH	Cases on hand at beginning of month.	Cases Reported in Month			Total under Treatment	Deaths in Month			Recoveries in month	Total discharges	Cases on hand at end of month.
		White	Colored	Total		White	Colored	Total			
January	*12	4	1	5	17	1	0	1	10	11	6
February	6	3	1	4	10	0	0	0	7	7	3
March	3	2	0	2	5	1	0	1	2	3	2
April	2	8	0	3	5	0	0	0	3	3	2
May	2	3	2	5	7	0	0	0	3	3	4
June	4	25	9	34	38	2	1	3	10	13	25
July	25	41	9	50	75	4	1	5	30	35	38
August	38	83	13	46	84	1	2	3	40	43	41
September	41	28	14	42	83	3	1	4	45	49	34
October	34	19	4	23	57	1	1	2	36	38	19
November	19	14	7	51	40	1	1	2	22	24	16
December	16	18	3	16	32	2	0	2	21	23	9
Summary for the year		188	63	251	263	16	7	23	229	252	†9

TABLE No. 22.

Showing Number of Cases of Diphtheria, Scarlet Fever and Measles Reported to the Health Department, and the Deaths From these Diseases During Each Month of 1911.

MONTHS	DIPHTHERIA.						SCARLET FEVER						MEASLES					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January . . .	32	4	36	2	0	2	11	0	11	0	0	0	4	1	5	0	0	0
February	11	3	14	0	0	0	5	0	5	0	0	0	7	13	20	1	0	1
March	17	0	17	0	1	1	7	1	8	0	1	1	32	14	46	0	0	0
April	8	3	11	1	0	1	3	0	3	0	0	0	83	10	93	1	0	1
May	7	1	8	0	0	0	2	0	2	0	0	0	99	22	121	3	0	3
June	1	0	1	0	0	0	2	0	2	0	0	0	51	33	84	2	1	3
July	10	0	10	1	0	1	12	0	12	0	0	0	26	8	34	1	1	2
August	6	2	8	1	0	1	13	0	13	0	0	0	10	3	13	0	1	1
September	22	0	22	1	0	1	22	2	24	0	0	0	1	3	4	0	1	1
October . .	57	2	59	2	0	2	55	3	58	1	0	1	2	0	2	0	0	0
November	42	2	44	4	0	4	24	1	25	0	0	0	0	0	0	0	0	0
December	36	2	38	0	0	0	18	1	19	1	0	1	1	0	1	0	0	0
Total	249	19	268	12	1	13	174	8	182	2	1	3	316	107	423	8	4	12

TABLE No. 23.

Showing Number of Cases of Whooping Cough, Chicken-Pox and Smallpox Reported to the Health Department, and the Number of Deaths for Each Month in 1911.

MONTHS	WHOOPING COUGH						CHICKEN-POX						SMALLPOX					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January	7	12	19	2	1	3	27	5	32	0	0	0	0	0	0	0	0	0
February	10	6	16	0	3	3	23	9	32	0	0	0	0	0	0	0	0	0
March	22	18	40	4	5	9	36	13	49	0	0	0	2	0	2	0	0	0
April	12	8	20	2	2	4	29	8	37	0	0	0	0	3	3	0	0	0
May	14	29	43	2	4	6	14	5	19	0	0	0	2	2	4	0	0	0
June	21	4	25	5	1	6	1	3	4	0	0	0	4	1	5	0	0	0
July	12	4	16	7	3	10	5	1	6	0	0	0	1	0	1	0	0	0
August	5	2	7	2	4	6	4	2	6	0	0	0	0	3	3	0	0	0
September . . .	3	0	3	1	1	2	0	1	1	0	0	0	0	1	1	0	0	0
October	1	1	2	1	1	2	2	0	2	0	0	0	0	0	0	0	0	0
November	2	0	2	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	14	0	14	0	0	0	0	0	0	0	0	0
Total . . .	109	84	193	26	25	51	160	47	207	0	0	0	9	10	19	0	0	0

TABLE No. 24.

*Meteorological Observations, 1911.**

MONTH	THERMOMETER			Rainfall in inches
	Highest Degree	Lowest Degree	Mean Degree	
January	73	22	42	3.65
February	68	14	34	2.50
March	74	20	45	2.15
April	80	29	52	4.00
May	95	38	70	0 60
June	98	56	75	2.83
July	100	60	80	* .57
August	97	58	78	7.26
September	91	48	78	1.85
October	85	40	59	3.61
November	72	26	45	4.33
December	70	23	43	3.95
Total	.....	...		37.30

***From reports of U. S. Weather Bureau.**

REPORT OF MEDICAL INSPECTOR.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit my report as Medical Inspector for the year ending December 31, 1911.

This report is intended to show the work done by the Medical Inspector on the outside and does not show any of the many things done in the office, such as keeping records, answering telephone calls, giving information to visitors, answering questions concerning the probable duration of quarantine, and the multitude of other things arising in the course of routine office work.

All cases of contagious disease have been closely followed and an effort made to find the source of infection, to limit the spread from this source, and to prevent secondary cases from any of those reported, by means of advice as to the isolation and disinfection of cases, and by means of quarantine, and by placarding. The Medical Inspector, on account of his constant work in contagious diseases, has been frequently called in consultation by the physicians of the city for various troubles, but chiefly in connection with diphtheria cases and the diagonosing of mild cases of scarlet fever. He has also been called quite frequently in cases of various troubles in which there was some suspicion of smallpox. In connection with this outside work, the following account is submitted of the work done during the year on each of the contagious diseases on which anything was attempted.

Table Showing Visits Made by Medical Inspector in 1911.

MONTHS	Typhoid Fever	Diphtheria	Scarlet Fever	Measles	Whooping Cough	Vaccinations	Chicken-Pox	Smallpox	Other Causes	Total
January	5	38	12	5	0	4	18	0	12	94
February	6	17	15	20	0	7	18	0	4	87
March	2	19	18	46	0	343	26	16	7	477
April	5	12	10	93	0	60	22	16	37	255
May	8	10	9	121	0	27	15	7	12	209
June	45	1	6	84	0	17	3	7	36	199
July	71	11	39	34	0	5	4	19	14	197
August	75	9	38	13	0	36	6	9	8	194
September	59	24	65	4	0	51	1	7	6	217
October	24	76	223	2	0	8	2	0	30	365
November	29	67	186	0	0	1	9	0	26	318
December	24	57	87	1	2	2	7	0	18	198
Total	353	341	708	423	2	561	131	81	210	2,810

This table shows the number of visits made by the Medical Inspector for various causes. The numbers are not the same as the number of cases of various diseases (which latter is shown in Tables Nos. 21, 22 and 23), as more than one visit was frequently paid to the same case.

To this should be added 803 visits for taking release cultures and 153 visits for taking diagnosis cultures for diphtheria, making a total of 3,765 visits made by the Medical Inspector during the year.

The following table shows the visits made by the Medical Inspector for the taking of diphtheria cultures:

MONTH	Diphtheria Cultures Taken		
	Diagnosis	Release	Total
January	12	120	132
February	1	69	70
March	6	43	49
April	20	24	44
May	10	34	44
June	2	4	6
July	7	19	26
August	1	27	28
September	8	26	34
October	22	104	126
November	28	133	161
December	36	199	235
Total	153	802	955

Typhoid fever. The year 1911 records further advance in the eradication of typhoid fever from Richmond. The year closes with 9 cases of typhoid on hand against 12 for the close of 1910. The work attempted on this disease has been in two directions, to limit the spread, and to establish a correct diagnosis in all cases in which the diagnosis was in any way doubtful. To limit the spread every case was visited as soon as reported and all sources of infection were looked into, and not only were the precautions to be observed gone over carefully with the person in charge of the paient, but disinfectants were also supplied to those who were unable to pay for them and the windows were properly screened. Mosquito netting was supplied by the Department and put up in many of the cases, and lace curtains or sheets were utilized for the doors, and by using an abundance of fly paper we were able to keep the rooms nearly free from flies. The Medical Inspector also saw that a nurse from the Visiting Nurse Association aided in the treatment of all cases in which the people were unable to pay for a nurse. These measures have been very successful in the prevention of secondary cases in the home, only 3 of which have occurred during the year after the Health Department was notified. In one of these, the mother would not use the disinfectants after they were supplied to her. Another case was in a colored child who was allowed to go into the room with the patient, and the third one was in a woman whose child had had an attack of typhoid six weeks previously.

A few questions were asked at each of the visits as to symptoms in the case and the Medical Inspector always tried to secure a look at the patient whenever this was possible without arousing suspicion, and if there were any symptoms of a doubtful nature the physician was seen with regard to them. In this way positive sputums for tuberculosis were secured from four cases which had been reported as typhoid fever. All of these cases died soon after the diagnosis was secured and would almost certainly have gone as typhoid cases but for this precaution. Widal specimens were often taken by the Medical Inspector at the request of the attending physician, and a blood culture was taken in a few cases. This precaution saved us one death during the year, as in one case the cause of death was changed to pneumonia after the finding of the pneumococcus and not the bacillus typhosus in the blood.

The first five months of 1911 showed a remarkably low number of typhoid cases, only 19 cases in all being reported during that period, and 2 deaths, one of which was a 1910 case. This was the most remarkable run of cases in the history of the city and was commented upon in all the daily papers at the time. With the advent of the fly season the number of cases began to increase. July showed the most reported cases of any month during the year and also the most deaths.

Four cases in July were traced to ice. It was found that all the cases received their ice directly from a shop and not from an ice-wagon. This shop was kept by a woman whose husband ran an ice-wagon. The woman who ran the store had a severe attack of typhoid fever in 1902. This ice supply had been suspected of being the source of some cases investigated by Dr. Freeman in 1907, but had not been under suspicion since that time. The woman who ran the store had a colored woman to assist her in handling the ice, and a case of typhoid fever which had continued for four weeks was reported in the servant's home about the same time as the other cases. This was only a short distance from the store and the servant was constantly going into the patient's room. It was thought likely that the colored woman was the source of the trouble, but in view of the previous cases it was thought best to have an examination made of the excreta from the woman in charge of the store. This examination was negative. The servant was cautioned not to visit the typhoid case. Both were given directions as to the care of the hands and no further trouble has been experienced from that source.

Six cases were attributed to a spring in the outskirts of South Richmond. This spring consisted of a barrel sunk into a swamp. The top of the barrel was open and buckets were freely dipped into it. It was in a dry closet neighborhood, and there was one privy which was only about thirty feet from the spring. In 1910 a case of "malaria" (?) was treated for four weeks in this house. The cases developed during a period of four weeks, and it was thought that they came from a careless carrier case who was dipping a bucket into the spring. As no better source of supply was available, the people using the water were cautioned to boil it before drinking. The spring was walled with concrete and a tight top was put on, with the result that no more cases have been reported from that vicinity.

Flies undoubtedly played an active part in the transmission of the disease from one person to another. Nearly every city case of typhoid reported during the year was in a dry closet district, or, what was worse, in one in which the sewer connections were poor. A few of the cases were not properly screened and were followed in from three to four weeks by one or two cases on the same square.

Six of the December cases were thought to have contracted the disease from eating raw oysters. Three of the cases were in persons who had eaten raw oysters from the same source. One of the others had eaten raw oysters at various places in the city, and in one the source of the oysters could

could not be ascertained, as the patient was delirious when the case was reported. Two cases have been reported since the year closed who ate oysters from the same source as the three cases mentioned. All used city water, but were located in the eastern section of the city. All were in a well-sewered section of the city, used either no milk or milk from different dairies, used ice and received vegetables from different places, making it certain that the oysters were the source of the trouble.

The total number of cases reported in 1911 was 251, which was 12 less than were reported in 1910. This does not, however, show the actual decrease in cases reported in 1911 over 1910. By consulting the following tables it will be seen that 83 cases (estimated) were imported in 1911 to 54 (estimated) in 1910. This makes 41 fewer cases that were contracted in the city in the year just closed than in the preceding year. The large number of imported cases reported in 1911 was due to the fact that much attention was given to securing reports from hospitals cases. Early in the year a report box containing report forms was sent to the resident physicians at each of the hospitals with the request that they report all cases of typhoid treated in the hospital, and many of these cases were visited by the Medical Inspector. Twenty-four cases (estimated) were in residents who contracted the disease while out of the city, most of these being contracted while the people were away for a summer vacation.

Table Showing the Case Fatality of Typhoid Fever in 1911.

CASES	No. of Cases	No. Cases Terminated	Deaths	Case Fatality per cent.
On hand January 1, 1911	12	12	1	8.3
Reported in 1911	251	242	22	8.8
Total under treatment in 1911	263	254	23	8.7
Cases contracted in 1911:				
White	188	182	15	8.2
Colored	63	60	7	11.1
Contracted in Richmond (estimated)	168	160	14	8.1
Contracted out of Richmond (estimated)	83	82	8	9.6
Corrected figures for 1910, from final outcome of all cases reported during the year*	263	263	29	11-0

*When the 1910 annual report was submitted, 12 of the cases reported during that year were still on hand. One (1) of these subsequently died.

Table Showing the Death Rate from Typhoid Fever in 1911.

	No. of Deaths	Death Rate Per 100,000
Total deaths	23	17.8
White	16	19.6
Colored	7	14.7
Contracted in Richmond	15	11.6
Contracted out of Richmond	8	6.2

Table Showing Cases of Typhoid Fever Contracted In and Out of the City During 1911.

Cases certainly contracted in city	149	
Cases in which information was not conclusive:		
14 probably contracted in city (probability 75 per cent.)	10	
12 with equal probability (50 per cent.)	6	
11 possibly contracted in city (25 per cent.)	3	
Total cases contracted in city (known and estimated)	168	66.9 per cent.
Cases certainly contracted out of city	65	
Cases in which information was not conclusive:		
37 cases (see above) less 19 estimated as contracted in city	18	
Total cases contracted out of city (known and estimated)	83	33.1 per cent.

Table Showing the Source of Infection in Imported Typhoid Cases in 1911.

Cases contracted in

	Number.
Connecticut	1
Florida	1
Kentucky	1
Georgia	2
Maryland	1
New York	1
North Carolina	15
South Carolina	1
Virginia (estimated)	57
West Virginia	3

Location of Cases Originating in Virginia.

Charlottesville, Albemarle County	2
Hot Springs, Bath County	1
Nimrod Hall, Bath County	1
Lynchburg, Campbell County	1
Chester, Chesterfield County	1
Drewry's Bluff, Chesterfield County	1
Woodlawn Heights, Chesterfield County	1
Other parts of Chesterfield County	8
Butterworth, Dinwiddie County	3
Petersburg, Dinwiddie County	1
Fluvanna County	1
Barton Heights, Henrico County	2
Glen Allen, Henrico County	1
Highland Park, Henrico County	3
Lorraine, Henrico County	5
Other parts of Henrico County	2
King William County	1
Crittenden, Nansemond County	1
Norfolk, Norfolk County	1

Ocean View, Norfolk County	2
Nottoway County	1
Virginia Beach, Princess Anne County	1
Farmville, Prince Edward County	1
Roanoke, Roanoke County	1
Suffolk, Nansemond County	1
Other places in Virginia (estimated)	13
Total contracted in Virginia outside of Richmond	57

The Following Table Shows the Decrease in Number of Cases, Deaths and Death Rate from Typhoid Fever for Each Year Since 1906.

YEAR	CASES REPORTED			DEATHS			DEATH RATE PER 100.000		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
1907	395	100	495	37	10	47	52.5	23.3	41.4
1908	388	106	491	39	18	57	54.6	41.5	49.7
1909	293	83	376	18	10	28	24.9	22.8	24.1
1910	197	66	263	15	13	28	18.6	27.5	21.9
1911	188	63	251	16	7	23	19.6	14.7	17.8

The diagnosis was extremely doubtful in three of the fatal cases reported as having contracted the disease in the city, and there was some doubt in five others as to the disease being typhoid fever. In two of the fatal cases contracted outside the city the diagnosis was extremely doubtful—one of them being reported as "presumedly typhoid fever."

Diphtheria. The number of cases and deaths from this disease were about the same as during 1910, 268 cases being reported in 1911 against 260 for 1910, and there were 13 deaths each year. A study has been made of all cases reported during the year with a view to preventing the disease. Nasal cases have been found to be one of the chief sources of the spread of diphtheria, and it was found to be of two types—acute and chronic. The acute cases were always severe enough for a physician to be called early and he did not have much trouble in recognizing the nature of the complaint. The chronic cases, however, would go for a month, or, as in one case, for three months, before the nature of the disease was recognized. Usually it was then recognized because of another case in the house. The only symptom would be a severe nasal discharge. Many of the cases got well without antitoxin. These children often went to school, church or any other place they wished, leaving a trail of living diphtheria germs behind them. One of these cases was undoubtedly the source of infection in six cases—one in his class at school, another at his Sunday School, and four cases in his home. The nasal cases occurred in the summer and early autumn months; in fact, eight of the ten cases reported in July were of this type. Flies played some part in the transmission of the disease from one person to another. Five children in one family had nasal diphtheria at one time, and flies could be seen going from one nose to another while the children restlessly slept. In the summer months there seemed to be a tendency for several nasal cases to develop in the same family. Later in the year the type of the disease changed to tonsillar and laryngeal.

Fourteen cases of diphtheria were discovered by the Medical Inspector during the year while investigating reported cases, and all but one were of the nasal type. Some of these cases were playing with two or three other children when found and even the physician in charge would doubt the diagnosis until a positive culture was secured.

Diphtheria cases when occurring in older children and in adults are usually very mild, many of them getting well without antitoxin. Six cases were treated during the year without antitoxin, all of which were in older children or adults. Several cases were traced to what were thought to have been cases of tonsilitis. Females were found to contract the disease more often than males—149 cases being females to 119 males. This was especially true of older children and adults—38 cases being reported in females over 10 years of age to 16 cases in males above that age. The following chart shows the age incidence of all diphtheria cases, and also the number of each sex.

Table Showing Age Incidence of Diphtheria Cases and Deaths Reported in 1911.

	Under 1 yr.	1 to 2 yrs.	2 to 3 yrs.	3 to 4 yrs.	4 to 5 yrs.	5 to 6 yrs	6 to 7 yrs.	7 to 8 yrs.	8 to 9 yrs.	9 to 10 yrs.	10 to 15 yrs.	15 to 20 yrs.	Above 20 yrs.	Male	Female	Total
Laryngeal cases	2	8	5	12	5	5	8	3	1	1	2	0	0	31	21	52
Other forms	5	6	11	29	19	28	22	21	15	8	25	7	20	87	129	216
Total all forms	7	14	16	41	24	33	30	24	16	9	27	7	20	118	150	268
Deaths	1	1	3	1	1	1	2	0	0	0	1	0	1	6	7	13

The colored race is practically immune to diphtheria, only 19 cases, with one death, being reported in that race. The youngest child having diphtheria was a nursing infant five months of age. The oldest patient was a colored woman 55 years old.

Much is being said nowadays, with regard to anaphylaxis from secondary doses of antitoxin. Secondary doses have been given in sixteen cases during the year and the third dose in one case. The interval between the first administration and the second varied from one week to five years. The only untoward symptom observed in any of the cases was an urticarial eruption, with some edema around the eyes and slight glandular enlargement which lasted for a day or two.

The largest dose of antitoxin administered during the year was 60,000 units. The patient, a five-year-old girl, recovered.

Five of the deaths were laryngeal cases, seven tonsillar, and one was suffering from post-diphtheritic toxemia when brought to the city. Of the five laryngeal cases only two were reported to the Department before death. Forty-nine laryngeal cases were reported to the Department before death, giving a case fatality of 4.16 per cent for all living laryngeal cases seen by the Medical Inspector. One of the two deaths of laryngeal cases was that of an infant 11 months of age who had a severe infection and was very ill when first seen. The other death was that of a child three years of age, who had a congenital stenosis of the larynx so that it was impossible to introduce a one year tube. Of the three unreported laryngeal cases a tracheotomy was performed upon one, one was given 5,000 units of antitoxin and not again seen by the physician, and the third was allowed to choke to death while the physician, who had seen it the day previously and been called a second time to see it, was asleep. One of the tonsillar cases was brought into the city in a dying condition. In a part of the others the physician was not called early enough, and, in a part of them, he did not recognize the nature of the trouble until it was too late. The dose of antitoxin was probably too small in one of the cases.

Summary of Diphtheria Statistics.

	White	Colored	Total
Total reported cases	249	19	268
Cases contracted in city	243	19	262
Cases contracted out of the city	6	...	6
Total deaths	12	1	13
Residents, disease contracted in city	10	1	11
Nonresidents, disease contracted outside the city	2	.....	2
Case fatality, per cent:			
All cases	4.8	5.3	4.9
Cases contracted in the city	4.1	5.3	4.2
Cases contracted outside the city	33.3	......	33.3
Death rate per 100,000 population:			
All cases	14.7	2.1	10.1
Residents, disease contracted in the city	12.3	2.1	8.5
Nonresidents, disease contracted outside the city	2.4	.. ..	1.6

Scarlet Fever. Scarlet fever threatened to become epidemic during the latter half of 1911. Nothing unusual happened during the first six months except that in March the disease attacked a colored family living on north Second street. One child died of what was thought to have been a case of tonsilitis. A second child was taken with the same trouble and the Medical Inspector was called to see the case for diphtheria but diagnosed it as scarlet fever This child died also. The disease first caused trouble in Fulton in the month of July. A mild case of the disease was diagnosed as "stomach trouble" by the attending physician and was allowed to go to Fulton playground. Twelve cases were reported during the month, eight of which were from this case. Thirteen cases were reported in August, four of which were contracted from a child who had the disease in West Virginia and was allowed to come to the city before recovering from nasal discharge which followed the attack. Six cases were found during the month in which no physician was called or the physician failed to recognize the trouble. In one instance the disease was allowed to go through two families before it was gotten hold of. The first case was diagnosed as "stomach eruption" and in the second family as "german measles," but all were peeling nicely when found.

The disease seemed to be checked until the schools opened in the middle of September and at once reports began to increase in number. The Chief Health Officer's attention was called to the fact that the disease was spreading, that many cases were having no physician, and that the physicians were frequently failing to diagnose it. An article was sent to all the daily papers notifying the physicians of the danger and warning the people to call a physician in every case of eruptive trouble. This did not lessen the spread of the disease. A part of the following age chart was now made showing that scarlet fever was spreading through the schools. This was shown by the comparatively large number of cases in school children during the months of September and October. Several of the cases under six years were in children who attended kindergartens or were infected from cases in school children.

CASES REPORTED IN 1911	Under 1 yr.	1 to 2 yrs.	2 to 3 yrs.	3 to 4 yrs.	4 to 5 yrs.	5 to 6 yrs.	6 to 7 yrs.	7 to 8 yrs.	8 to 9 yrs.	9 to 10 yrs.	10 to 11 yrs.	11 to 12 yrs.	Over 12 yrs.	Total
To September 1st	2	2	3	6	8	3	4	3	1	5	3	3	10	53
September	1	0	1	3	1	2	5	2	3	0	1	4	1	24
October	1	1	1	3	5	6	8	8	4	6	6	5	4	58
November	1	2	0	4	1	1	2	3	4	1	3	2	1	25
December	0	3	0	0	0	4	2	0	2	1	3	0	4	19
Total	5	8	5	16	15	16	21	16	14	13	16	14	20	179

The Medical Inspector was called in consultation in twelve cases of undoubted scarlet fever in which the previous diagnosis was diphtheria, and three cases of scarlet fever were reported as diphtheria. Twenty-one children who had had mild cases of scarlet fever, and were peeling nicely, were found, some of whom had already gone back to school. A circular letter was sent to the physicians of the city stating the chief symptoms of scarlet fever and requesting that they examine the body carefully in all cases of sore throat they were called to attend. One school was closed on account of the prevalence of the disease among its pupils, and one grade was closed in two others. The school nurses were called upon to look after all absentees from a room in which a case had developed, and when any of them showed any symptoms of scarlet fever they were visited by the Medical Inspector to ascertain the nature of the disease. Many of the school rooms were visited by the Medical Inspector, the children examined, and notified to remain at home if sick. The number of reported cases began to decline at once. Fifty-eight (58) cases were reported in the month of October, 25 in November and in December 19. Eight (8) cases were in negroes to 174 in whites, and 100 were in females to 82 in males.

Three deaths were reported from scarlet fever during the year, one of which was that of the colored child mentioned above. The second was that of a baby who was taken with summer diarrhea two weeks after recovery from a mild case of scarlet fever. The diarrhea continued for four weeks when the child died. The last case to die during the year was a baby who had a severe case with kidney and lung involvement.

Summary of Scarlet Fever Statistics for 1911.

Total cases reported during year	182
Total deaths	3
Cases fatality, per cent.	1.6
Death rate per 100,000	2.3

Measles. True to the prophecy made by the Chief Health Officer, a small number of measles cases developed during the early part of the year. The first outbreak was during the month of February in the colored school in Fulton, which locality was spared in the 1910 epidemic. A child attended school until the eruption appeared and two weeks later a number of cases were reported, all in the colored race. Twenty cases were reported during the month of February, most of which were from this school. Some white children living in the vicinity were infected and the disease spread to the white school in Fulton, and soon over that part of the city. A girl from Fulton worked at one of the large tobacco factories and was taken ill while at work. Several girls working in the room with her were infected and the disease spread to Church Hill. A colored child contracted it and was taken sick at East End school (colored). Eight children contracted the disease at a Sunday School and several cases were gotten from other schools in the eastern part of the city. After the disease was once scattered, direct contact in the home was found to play an active part in its dissemination.

The western part of the city had been nearly immunized by the 1910 epidemic, and only a few scattered cases were reported from that section, the eastern part bearing the brunt of the attack. Whooping cough was very prevalent at the same time as measles and many of the measles cases were complicated by that disease, which forms a very serious combination, especially when occurring in an infant, and several of the measles deaths were probably due to whooping cough rather than to measles. All the cases were visited as soon as reported by the physician and an effort made to find the source of the infection. Several cases were located in which a physician had not been called. Instruction was given at these visits as to quarantine and the care of the patient so as to prevent complications.

Summary of Measles Statistics for the Year 1911.

	White	Colored	Total
Total cases reported	316	107	423
Deaths	8	4	12
Case fatality, per cent	2.5	3.7	2.8
Death rate per 100,000	9.8	8.4	9.2

Smallpox. Much trouble was experienced during 1911 in the control of smallpox. North Carolina was probably responsible, as will be shown later in this report, for all cases of smallpox in Richmond during 1911 with one exception. More than 3,000 cases were reported in North Carolina during the year (U. S. Public Health and Marine Hospital Reports) and it is very likely that many cases were not reported. It was nearly epidemic in some of the larger towns, more than 500 cases being reported from one town alone. The disease was of a very mild type and only a modified quarantine was kept. Unvaccinated, exposed persons were constantly coming to Richmond from North Carolina and it was necessary to keep a close watch on all eruptive cases reported to the Health Department during the entire year.

Some of the cases were so mild that the physicians of the city had trouble in diagnosing them. Four cases reported as chickenpox proved upon investigation to be mild cases of smallpox. One case was treated for syphilis until a sympathetic neighbor kindly telephoned to the Medical Inspector to take a look at it. Another case was discovered by investigating a report sent to the Department by a citizen who suspected a neighbor of having smallpox.

The first case reported to the Department during the year was that of a young white man who came to the city to work upon an elevator. He was taken ill and sent to one of the hospitals of the city, and broke out with smallpox three days later. The case was promptly reported and all exposed persons immediately vaccinated and no further trouble was experienced from this source.

The case which caused the most uneasiness was that of a negro man who came to the city from North Carolina and secured employment in one of our large tobacco factories. He broke out a few days after arrival in the city with a mild case of smallpox. He saw no physician and continued at work in the factory. He lived with a family of five people on Church Hill all of whom had been vaccinated and were thus protected against the disease. He visited in the neighborhood where he lived and went to church. Four people working in the same building at the factory contracted the disease. Three of the cases were in negroes and were soon discovered and reported to the Department. The fourth case was in a white girl. She called a physician before the eruption appeared and he prescribed for her but did not see her again. A baby and its mother living in the same house had smallpox and recovered without calling a physician. The father of the child was then taken ill and called a physician who reported the case to the Health Department. Fortunately, none of the many persons exposed to these cases contracted smallpox. One case came into the city for treatment and was sent from the physician's office to the smallpox hospital.

In August, a negro came to the city from North Carolina and went to live with a family on north First street. He was taken sick a few days later and broke out with smallpox. No physician was called and he remained indoors during the day but went upon the street at night, returning to North Carolina as soon as he thought it safe to travel. A little child living in the house contracted the disease and a physician was called who said that the eruption was due to teething. A man living next door contracted smallpox from the child and the case was immediately reported by the physician in charge. The last case was reported in the month of September.

The following table shows the source of infection in all reported cases occurring in the city during 1911.

Contracted in North Carolina	5
Contracted from a case that came from North Carolina	10
Contracted from a case that came from South Carolina	1
*Source of infection unascertainable	3
Total reported cases	19
†Unreported cases:	
Disease contracted in North Carolina	3
Disease contracted from case that came from North Carolina	4
*Source of infection unascertainable	1
Total unreported cases	8

The cases were scattered over the entire city. All exposed persons were vaccinated as soon as possible. Vaccinators were put to work in the vicinity of the cases and made a house to house canvass. Nearly the entire city was thus revaccinated. The fifteen hundred employees at the tobacco factory mentioned above were vaccinated as were those of several other large manufacturing establishments and several thousand people in all availed themselves of this opportunity to be vaccinated.

Smallpox caused no deaths in Richmond during the year.

Quarantine. Very little trouble was experienced during the year in keeping quarantine, most of the people being not only willing to observe quarantine but were also glad to follow the precautions given by the Medical Inspector so as to prevent other cases in the home. Some of the cases of scarlet fever were so mild that it was hard to convince the parents that the child had the disease and in a few cases they grew lax after some days and allowed the child to come out with the others in the house. Such disobedience was usually followed by a second case in the house, after which no further trouble would be experienced. The most trouble was experienced in keeping quarantine on some mild scarlet fever cases in Fulton during the month of July. A negro ran away from the City Hospital where he was quarantined for diphtheria, but was carried back the next day by the Medical Inspector and gave no further trouble. A negro girl ran away from quarantine on Seventeenth street, and her name and address were given to the Police Department, but she was not apprehended. All cases in which the Medical Inspector felt that quarantine would not be kept were visited every three days.

Physicians. The Medical Inspector desires to express his appreciation for the aid and co-operation which he has received from the physicians of the city. Most cases of reportable disease have been reported over the telephone. These reports have been invaluable, as without such reports it would have been impossible to do efficient work.

Respectfully submitted,

C. C. HUDSON, M. D.,
Medical Inspector.

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*Those cases in which the source of infection was unascertainable were thought to have contracted the disease from some mild case from North Carolina that had not been reported

†Unreported cases were well when discovered.

REPORT OF BACTERIOLOGIST.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as City Bacteriologist for the year ending December 31, 1911.

There were 3,070 specimens examined during the year, a decrease of 62 specimens from 1910, as follows:

		1910		1911	
Diphtheria,	Diagnosis	845		832	
	Release	823		967	
	Total		1,668		1,799
Typhoid fever,	Widel tests	407		320	
	Diazo tests	64		63	
	Other tests	..		10	
	Total		471		393
Tuberculosis			905		805
Malarial fever			88		73
Total examinations of all kinds			3,1 32		3,070

In addition to the diagnostic work of the laboratory a number of samples of water were examined and 1,685 samples of milk.

TUBERCULOSIS.

There were 100 fewer specimens of sputum examined during 1911 than during 1910, but there was an increase of 28 in the positive results. Hence the decrease was probably in the number of specimens submitted from cases exhibiting only slight symptoms. It is always advisable to have specimens submitted from these cases, as occasionally the examination proves positive thereby diagnosing the case in its earliest stages.

DIPHTHERIA.

As shown in the table above there were 127 more diphtheria specimens examined in 1911 than in 1910. There were, however, 13 specimens fewer submitted for diagnosis. This slight decrease is more than accounted for when we recall that for the first time in several years there were no entire school grades or institutions examined for suspected carriers.

The increased number of release cultures submitted was due principally to the regularity and promptness with which all cases are followed up by the Medical Insepctor, the number of cases being about the same.

The direct swab and 5-hour culture examinations were continued, giving in several cases a much earlier diagnosis than could be obtained by the regular method.

Showing Results of Direct Swab Examinations

RESULT OF DIRECT SWAB EXAMINATION		RESULT OF REGULAR EXAMINATION		
		Positive	Negative	Doubtful
Positive	6	5	1	0
Negative	8	2	6	0
Doubtful	5	8	2	0
Total	19	10	9	0

Showing Results of Five Hour Examination.

RESULT OF FIVE-HOUR EXAMINATION	RESULT OF REGULAR EXAMINATIONS		
	Positive	Negative	Doubtful
Positive 12	12	0	0
Negative 31	2	28	1
Doubtful 4	3	0	1
Total 47	17	28	2

Of the diphtheria specimens examined during the year, 19 were reported as doubtful after the regular period of incubation. Of these, 9 proved positive on later cultures, 4 proved negative and 6 were reported as diphtheria without further swabs being submitted. The reincubation of those doubtful cultures often gives a diagnosis some hours before a second specimen could be secured and examined, this occurred in four of the above positive cases.

The average time of release for diphtheria cases in 1911 was 15.75 days, being about one day longer than in 1910. The shortest period of quarantine was four days and the longest 47 days.

Too much dependence is as heretofore frequently placed on negative findings in cases of suspected laryngeal diphtheria. It should be borne in mind that the examination in this type of diphtheria is not to be depended upon except when the result is positive, and that the diagnosis can usually be made much better clinically. Swabs were submitted from 37 cases of laryngeal diphtheria, 26 or 70 per cent. of these gave positive results, 2 were reported doubtful, and 9 or 24 per cent. as negative. Of the 9 reported as negative 2 gave positive results on swabs submitted the the following day.

TYPHOID FEVER.

The Widal reaction has again proved highly unsatisfactory, many cases of undoubted typhoid fever having failed to give positive results. Feeling the need for a better means of diagnosis the blood culture method has been put into use in every case where requested and has given excellent results. Only 8 specimens, however, were submitted during the year, in two of these the typhoid bacillus was obtained, in one the pneumococcus, and the other five were negative. The cases all corresponded to this clinically, with one possible exception.

In this method the blood is obtained directly from a vein and several tubes of culture media are inocculated with it. Ox bile is the best media for this work, but other media are also used in event of there being other infection than typhoid present. This method also gives positive results much earlier in the course of the disease than does the Widal reaction. In one of the cases mentioned above where the typhoid bacilius was actually recovered from the blood a typical Widal reaction was never obtained even though a number of specimens were examined. It is hoped that more physicians will use this method of diagnosis during the coming year.

BACTERIOLOGICAL LABORATORY—SUMMARY OF WORK FOR 1911.

1911 MONTHS	DIPHTHERIA						TYPHOID FEVER						TUBERCULOSIS			MALARIA			Total Examinations of All Kinds
	Purpose of Examination	Result of Examination				Total	Test	Result of Examination				Total	Result		Total	Result		Total	
		Positive	Negative	Atypical	Specimen unsatisfactory			Positive	Negative	Atypical	Specimen unsatisfactory		Positive	Negative		Positive	Negative		
January . .	Diagnosis	30	99	8	1	287	Widal	0	5	1	0	10	22	57	79	0	1	1	377
	Release	59	95	0	0		Diazo . .	0	4	0	0								
February . .	Diagnosis	13	26	1	1	124	Widal . . .	1	2	1	0	5	21	43	64	1	2	3	196
	Release	29	54	0	0		Diazo . .	0	1	0	0								
March . . .	Diagnosis	10	44	1	0	103	Widal . .	0	11	8	0	16	20	66	86	0	1	1	206
	Release	11	37	0	0		Diazo . . .	1	1	0	0								
April . .	Diagnosis	11	53	0	0	95	Widal . . .	0	8	2	0	12	21	74	95	0	1	1	203
	Release	10	21	0	0		Diazo	0	2	0	0								
May	Diagnosis	4	28	1	0	76	Widal	0	17	4	0	24	32	55	87	0	5	5	192
	Release	14	28	0	1		Diazo . . .	1	2	0	0								
June . . .	Diagnosis	0	17	0	0	21	Widal . .	2	26	10	0	42	26	43	69	1	11	12	144
	Release	0	4	0	0		Diazo	2	2	0	0								
July	Diagnosis	8	13	0	0	44	Widal . .	2	43	12	0	72	22	37	59	3	8	11	186
	Release	12	11	0	0		Diazo	4	10	1	0								
August . . .	Diagnosis	9	15	0	1	56	Widal	0	44	9	0	66	16	30	46	0	8	8	176
	Release	11	20	0	0		Diazo .	1	10	2	0								
September	Diagnosis	18	34	1	0	83	Widal	1	31	8	0	41	12	43	55	0	11	11	190
	Release	5	30	0	0		Diazo	2	4	0	0								

October . .	Diagnosis	50	69	3	0	254	Widal	2	31	5	0	42	19	35	54	0	10	10	360
	Release	30	102	0	0		Diazo	0	3	1	0								
November .	Diagnosis	34	71	6	0	260	Widal	0	21	9	0	37	16	41	57	0	7	7	361
	Release	56	92	0	1		Diazo	1	6	0	0								
December .	Diagnosis	28	64	3	1	330	Widal	1	10	3	0	16	23	31	54	0	3	3	403
	Release	84	150	0	0		Diazo	1	1	0	0								
Totals for 1911	Diagnosis	. . . .	. . . .	. .	. . .	766	Widal	. . .	. . .	. . .	. . .	320	. . .	. . .	. .	. . .	. . .	.	. .
	Release .	. . . .	. . .	. .	. . . .	967	Diazo . .	. . .	. . .	. . .	. . .	63	.	. . .		.	. . .	. .	. .
	Total. .	. .	. . .	. .	. . .	1733	. . . .	. .	. . .	.		383	. . .	. . .	805	. . .	. . .	73	2994

In addition to the above routine examinations the following examinations were also made :

Diphtheria—direct swab examinations	19
Diphtheria—five-hour cultures	47
Typhoid Fever—blood cultures	8
Para Typhoid Fever agglutination tests	2
Total examinations	3070

BACTERIOLOGICAL EXAMINATION OF MILK.

During the year 1911, bacteriological examination was made of 1,685 samples of milk, 75 more than in 1910, as follows:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
142	96	154	125	166	149	100	161	136	177	106	173	1,685

Of the 1,685 samples, the plates made from 10 were unsatisfactory, 322 were samples of cream and of milk used for churning only, and 1,353 were samples of regular market milk. These samples are classified in different tables, as cream usually contains more bacteria than milk, and the milk used for churning is for the most part that which comes from the greatest distance, being frequently 24 hours or more old when it arrives. All milk, whether used for churning or not, comes from inspected places. But sometimes milk having too high a temperature is allowed to be churned instead of being returned, and milk which has been excluded because of one high bacterial count may be used for churning until conditions have been corrected and subsequent samples show it to be again suitable for regular use. For those reasons the churning milk and cream have (as would be expected) a higher bacterial count and are classified separately.

TABLE A.

Bacteriological Examination of Regular Market Milk Showing the Number of Samples in Each Class.

CLASS	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
*Below 10,000	50	31	52	89	28	32	12	27	25	44	39	40	419
10,000 to 50,000	48	36	60	49	43	48	38	64	47	72	41	77	623
50,000 to 100,000	7	12	7	8	11	21	15	16	11	15	15	20	158
100,000 to 250 000	9	1	2	2	8	10	12	17	8	13	5	6	93
250,000 to 500 000	0	2	0	1	5	3	1	3	5	5	1	1	27
500,000 to 1 000,000	0	0	0	0	2	4	1	2	1	1	0	0	11
1,000,000 to 5 000,000	1	1	2	1	5	0	3	4	0	1	1	0	19
5,000,000 and over	0	0	0	0	3	0	0	0	0	0	0	0	3
Number of samples	115	83	123	100	105	118	82	133	97	151	102	144	1353
Average Air Temperature at 8 A. M. in Degrees F	36	38	38	55	67	71	76	74	69	52	40	35	

TABLE B.

Bacteriological Examination of Regular Market Milk, Showing the Percentage of Samples in Each Class.

CLASS	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Percentage of Total in Each Class
*Below 10,000	43.5	37.3	42.3	39.0	26.7	27.1	14.6	20.3	25.8	29.1	38.2	27.8	31.0
10,000 to 50,000	41.7	43.4	48.8	49.0	40.9	40.7	46.4	48.1	48.5	47.7	40.2	53.4	46.0
50,000 to 100,000	6.1	14.5	5.7	8.0	10.5	17.8	18.8	12.0	11.3	9.9	14.7	13.9	11.7
100,000 to 250,000	7.8	1.2	1.6	2.0	7.6	8.5	14.6	12.8	8.2	8.6	4.9	4.2	6.9
250,000 to 500,000	0.0	2.4	0.0	1.0	4.8	2.5	1.2	2.3	5.2	3.3	1.0	0.7	2.0
500,000 to 1,000,000	0.0	0.0	0.0	0.0	1.9	3.4	1.2	1.5	1.0	0.7	0.0	0.0	0.8
1,000,000 to 5,000,000	0.9	1.2	1.6	1.0	4.8	0.0	3.7	3.0	0.0	0.7	1.0	0.0	1.4
5,000,000 and over	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

TABLE C.

Bacteriological Examination of Cream and of Milk Used for Churning Only, Showing the Percentage of Samples in Each Class.

*Below 10,000	33.4	9.1	29.0	33.3	18.6	9.7	5.5	10.8	7.9	0.0	0.0	48.3	18.9
10,000 to 50,000	8.8	45.5	22.6	20.8	15.2	22.6	15.7	35.7	26.3	20.0	25.0	17.2	21.4
50,000 to 100,000	0.0	0.0	12.9	16.7	20.3	6.4	22.3	7.1	13.2	8.0	0.0	6.9	11.5
100,000 to 250,000	12.5	0.0	9.7	0.0	6.8	16.1	27.8	10.8	13.2	24.0	0.0	6.9	11.2
250,000 to 500,000	16.7	0.0	9.7	4.2	13.6	9.7	0.0	3.6	10.5	0.0	50.0	3.4	8.4
500,000 to 1,000,000	8.3	9.1	3.2	4.2	10.2	9.7	5.5	7.1	2.6	8.0	0.0	10.4	7.1
1,000,000 to 5,000,000	8.3	0.0	12.9	20.8	13.6	16.1	16.7	17.8	21.0	40.0	25.0	6.9	16.5
5,000,000 and over	12.5	36.3	0.0	0.0	1.7	9.7	5.5	7.1	5.3	0.0	0.0	20.0	5.0
Number of Samples	24	11	31	24	59	31	18	28	38	25	4	29	322

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* The numbers refer to bacteria per cubic centimeter.

In 1910 there were no samples containing over 500,000 bacteria, but so unusual a result could hardly be expected to occur again. In spite of the fact that there were several samples higher than this in 1911, the supply as a whole shows a decided improvement, especially in the number of samples showing less than 10,000 bacteria per c. c.

	1910	1911
Per cent. of samples under 10,000	14 1	31.0
Per cent. of samples under 50 000	70.6	77.0
Per cent. of samples under 100,000	85.9	88.7

Ten (10) samples gave counts of less than 1,000 bacteria per c. c.

In making bacteriological examinations of milk the Standard Methods of the A. P. H. A. are closely followed in all but the one detail concerning the length of incubation. All routine counts are made with a 1 to 1,000 dilution except with occasional samples where other dilutions seem advisable.

The requirement of 48 hours incubation has seemed inadvisable in that it causes what appears to us an unnecessary delay of 24 hours in following up results. To satisfy ourselves upon this point, counts were made of 205 samples at the end of 24 hours and again at the end of 48 hours, with the following results:

99 samples or 48.3 per cent gave the same count both times.

66 samples or 32.2 per cent. gave an increased count, but no change in group.

34 samples or 16.6 per cent. gave an increased count sufficient to cause a change in group.

6 samples or 2.9 per cent. could not be recounted on account of spreaders.

Of 88 samples below 10,000 after 24 hours incubation, 19 or 21.6 per cent. exceeded 10,000 in 48 hours.

Of 75 samples between 10,000 and 50,000 after 24 hours incubation, 11 or 14.7 per cent. exceeded 50,000 in 48 hours.

Of 18 samples between 50,000 and 100,000 after 24 hours incubation, 3 or 16.7 per cent. exceeded 100,000 in 48 hours.

Of 7 samples between 100,000 and 250,000 after 24 hours incubation, 1 or 14.3 per cent. exceeded 250,000 in 48 hours.

Of 17 samples over 250,000 after 24 hours incubation, all gave approximately the same count after 48 hours.

The one sample between 100,000 and 250,000 which exceeded 250,000 in 48 hours was a sample of cream, so that in no case would any milk have been excluded in 48 hours that was not in 24 hours.

In addition to saving a day's time by counting after 24 instead of 48 hours, a considerable number of plates where glass tops are used can be counted in 24 hours that cannot in 48 hours on account of spreading colonies. Where clay tops are used, the media dries out to a considerable extent, occasionally showing a decreased instead of an increased count.

Respectfully submitted,

A. H. STRAUS, B. S.,
City Bacteriologist.

REPORT OF CONSULTANT IN DIPHTHERIA.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.
Sir:

I have the honor to submit herewith my report of cases of laryngeal diphtheria seen for the Health Department for the year ending December 31, 1911, also appended tabulated statement of laryngeal cases seen for the Health Department for five years, 1907-1911 inclusive.

INTUBATED				NOT INTUBATED			TOTAL			
Recovered	Died	Total	Case Fatality—Per Cent.	Recovered	Died	Total	Recovered	Died	Total	Case Fatality—Per Cent.
22	1	23	4.4	8	1	9	30	2	32	6 3

The case that died, recorded under head of "cases not intubated," was a female, three years old, fairly well developed, suffering from laryngeal diphtheria (microscopic examination of throat swab by City Bacteriologist confirmed diagnosis of diphtheria) without medical attention for four or five days. Intubation impossible on account of tight stricture of larynx, not admitting the introduction of a 1-year tube. A tracheotomy tube was inserted and the child revived, but died twelve hours later from septic intoxication. Autopsy revealed a contracted larynx, presumably congenital stricture, due apparently to failure in the development of the cartilages, the internal diameter at narrowest point being less than 3/16 of an inch. This degree of contraction of the larynx is a rare condition.

In twenty-three intubations, two cases were postponed, one to the second call, the other to the third call, before the intubation was done. Seven cases required reintubation upon removal of the tube at the usual time—six of them only one reintubation, and the other one three reintubations, all invariably within thirty minutes after extubation, with a notable exception that one of the cases presented the very unusual circumstance of requiring reintubation after an interval of three days.

Only one of the series required temporary removal of the tube to clear it of a mucous plug. Two tubes were coughed up before the usual time for extubation, reintubation not being necessary in either case.

Several of the eight cases that recovered without intubation presented definite signs of laryngeal stenosis. To do an unnecessary intubation is condemned but to postpone the operation too long may be a fatal mistake. The latter, unquestionably, has occurred in a few instances in the practice of some physicians. When the indications for intubation are clear, the operation should be done at once, before the demand for it becomes imperative. Early intubation, especially in the young, bears much the same relation to the recovery of laryngeal cases as does *early* administration of antitoxin to the recovery of the average diphtheria case. One's decision as to doing an intubation must be based upon sound judgment, resulting from wide experience and careful observation.

The circumstances connected with the case that died were as follows: an infant ten months old, much depleted by a recent protracted attack of pertussis, and therefore poorly able to withstand a diphtheritic infection, was promptly relieved of a distressing dyspnoea, but died from exhaustion twelve hours after intubation.

It is possible to have, occasionally, a chronic tube case, probably due to the organization of granulation tissue within the larynx, which should have undergone resorption. It has not been my misfortune to encounter this condition in the series herein reported, though I have seen numerous cases elsewhere. The case above referred to, requiring four intubations, caused strong suspicion, however, that we were dealing with a chronic case. This child, a female, twenty months old, surrounded by the most unhygienic conditions that filth, dirt and neglect could provide, was, at the beginning, an urgent case, intubated first on October 5th, and extubated last on October 30th, with three other extubations and reintubations at regular intervals between these dates. This case was particularly troublesome. At no time during the treatment could the patient go without the tube longer than thirty minutes, the demand for reintubation becoming extremely imperative. This case, however, finally made a perfect recovery.

Attention is called to another case, particularly desperate—that of a child five years old who had had diphtheria for several days before a physician was called. He at once recognized the condition, and called me to intubate. Upon my arrival he stated that the child was dead and that intubation was unnecessary, and the patient truly presented no signs of life, but I inserted a tube at once, and suspended the patient by the heels. With the aid of artificial respiration and free hypodermic injection of the only stimulant immediately at hand—wine which happened to be in the room—the patient gave a faint gasp which we took to be the last, but another followed in due time, and the patient was resuscitated and made an uneventful recovery.

Numerous other cases—quite distressing and very desperate—might be added, except for making this report too long. I have taken the liberty of referring to these cases to emphasize the folly of waiting to the last minute to intubate, and to show also that lives may be saved when unmistakable signs of impending death are much in evidence, and all hope is lost.

So far, I have made reference only to those cases presenting definite complications, which includes about one-third of the cases intubated. I note, with distinct satisfaction, that 60 per cent. of the cases intubated ran a normal, uneventful course for the condition, and made perfect recoveries. I may, with propriety, add that, with the exception of the one death noted, every one of the intubated cases, including those with complications, as above indicated, made a perfect recovery.

In the perfection of the intubation tube and its application for the preservation of life and the relief of distress and suffering O'Dyer, of New York, has conferred a blessing upon humanity unsurpassed in the annals of medicine and equaled only by the discovery of antitoxin, anaesthetics and antiseptics.

Cases of Laryngeal Diphtheria Seen for the Richmond Health Department for Five Years, 1907-1911.

YEAR	INTUBATED				NOT INTUBATED			TOTAL			
	Recovered	Died	Total	Case Fatality—Per Cent.	Recovered	Died	Total	Recovered	Died	Total	Case Fatality—Per Cent.
1907	5	1	6	16.7	1	0	1	6	1	7	14.3
1908	3	1	4	25.0	0	0	0	3	1	4	25.0
1909	5	1	6	16.7	2	0	2	7	1	8	12.5
1910	14	2	16	12.5	4	0	4	18	2	20	10.0
1911	22	1	23	4.4	8	1*	9	30	2	32	6.3
Total . .	49	6	55	10.9	15	1*	16	64	7	71	9.9

*Congenital stenosis of larynx, making intubation impossible. Died in spite of tracheotomy.

The remarkable reduction in case fatality, as shown by the second table, is probably due to two causes, viz., (1) early and liberal administration of antitoxin, and (2) early intubation. The physicians generally, for the past two years, have called for intubation more frequently than formerly, and have, therefore, not only saved the lives of numerous children that must have died, but also have relieved the little sufferers of days of agonizing distress from frightful dyspnœa. The overestimation of the dangers of intubation is due to the accidents that befall the occasional intubator. In the hands of one who is familiar with the emergencies that may arise, as well as with the operation itself, it has practically no dangers. There is no operation that is so gratifying as a successful intubation.

Respectfully submitted,

P. D. LIPSCOMB, M. D.

NOTE: Two (2) cases, not included in the above report, intubated outside the city, both of which recovered, making a total of 25 cases intubated in 1911, with one (1) death, giving a case fatality of 4 per cent. for the year.

REPORT OF DIAGNOSTICIAN.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit to you my annual report for the year ending December 31, 1911.

CASES SEEN FOR DIAGNOSIS.

	White.	Colored.	Total.
Male	12	16	28
Female	8	8	16
Total	20	24	44

Smallpox	14
Chickenpox	19
Syphilis	4
Malaria alba	1
Acne pustulosa	1
Purpura urticans vaccinica	1
Roseola vaccinica	1
Vaccinia	1
Sudamen	1
Pemphigus vulgaris	1
Total cases diagnosed	44

SMALLPOX.

	White.	Colored.	Total.
Male	6	7	13
Female	0	1	1
Total	6	8	14

There were 19 cases of smallpox in the city during the year. Five (5) of these were not seen by me. Of these 5 cases, 3 were white males and 2 colored females. All 19 cases occurred in persons who had never been vaccinated.

Respectfully submitted,
WM. J. WEST, M. D.,
Diagnostician.

REPORT OF SMALLPOX HOSPITAL.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

In the absence from the city of Dr. Isaac Curd, physician to the Smallpox Hospital, I have prepared, at your request, the following report of that institution from the records at the hospital and in the office of the Board of Health.

	White			Colored			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Smallpox from Richmond	4	0	4	7	3	10	11	3	14
Smallpox from county	1	1	2	0	0	0	1	1	2
Suspects from Richmond	3	3	6	10	8	18	13	11	24
Total	8	4	12	17	11	28	25	15	40

Seven of the suspects, 4 males and 3 females, all colored, subsequently broke out with mild cases of varioloid. The first case was sent to the hospital on March 3d. After that time cases or suspects were kept at the hospital almost continuously until September 19th, when the last case was discharged. There was no death from smallpox during the year, most of the cases being very mild. Two of the cases were very severe, being nearly confluent in type.

Respectfully submitted,

C. C HUDSON, M. D.,
Medical Inspector.

REPORT OF NURSE IN CHARGE OF WORK FOR THE PREVENTION OF INFANT MORTALITY.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report of the work for the prevention of infant mortality done during 1911, by myself and the other nurses.

This work was begun in March, 1910. Two districts were selected in which the mortality had been especially high in previous years and where lived a class of people among whom it seemed probable that instruction was needed. One district was bounded by West Cary, Meadow, Belvidere and extended to the river, and had chiefly a white population. The other was bounded by Brook Avenue, Leigh, north Second and the city limits, and had almost entirely a colored population. A canvass for the locating of infants in these districts was begun in March, 1910, and continued until May. In 1911, this plan was continued except that the nurse in the second district enlarged that field by taking in parts of West Leigh, West Clay, Catherine and some other streets west of Brook Avenue. One change was made in selecting the babies. We took younger ones, trying to get those born after September 1, 1910, only taking older ones when especially requested or when there seemed some other good reason for doing so. We found many mothers who had known of the work in 1910 and who welcomed us with real interest. This was especially noticeable among the colored people, even among the well-to-do class. The nurse in the colored district was actually upbraided in several instances for not having found certain babies earlier in the canvass.

Up to September 1, 1911, the names and records of 617 babies were obtained, 163 white and 60 colored in the first district, 16 white and 290 colored in the second district, and 75 white and 13 colored in other parts of town, making 254 white and 363 colored babies in all. Of these, 80 were dropped for various reasons—the nurse was not welcome in a few cases, not needed in others, the baby was lost sight of, was extremely ill when referred to us and died before being seen again, or the case did not come within the scope of our work.

This left 537 babies who were visited during the summer and fall, 208 white and 329 colored. Among these, 402, or 74.9 per cent. (155 white and 247 colored) were breast-fed; 100, or 18.6 per cent. (45 white and 55 colored) were artificially-fed, and 35, or 6.5 per cent. (8 white and 27 colored) were partly breast and partly artificially-fed. The percentage of breast-fed babies was larger than in 1910 because the babies were younger, many seen within a few days after birth. Some of them were premature or congenitally weak and died before being seen a second time.

An effort was made to do some systematic visiting among expectant mothers, and records kept of this. This involved too much work, however, and could not be well done. Having so many more young babies than we had in 1910, we had fewer artificially-fed to begin with, and getting them so much earlier it was also possible to have them kept on breast milk in more cases. The importance of breast-feeding was emphasized as it had been the previous year. It was not always for lack of milk that the mother put the baby on the bottle, but because she did not realize the danger, because of having to go to work or from some other reason. One case was a forcible illustration of the advantage the breast-fed baby has over the artificially-fed. Twins were found, the mother in very bad health and quite unable to look after both of them. She kept one and nursed it and gave the other to a friend. The former baby received almost no care, but had the mother's milk—the second received excellent care and careful feeding under the nurse's instructions, yet succumbed to diarrhea in July, while the breast-fed baby throve and prospered, at least until the mother's death in November when it was lost sight of.

The importance of getting in touch with the babies early can hardly be overestimated. Baby Howard (colored) was found by the nurse on her rounds the day it was born. She was told that the next day it was to be taken to a foundling asylum. As the mortality in this institution had been especially high, though much improved since under the supervision of the Richmond Health Department, various forms of persuasion were brought to bear on the mother and she was prevailed upon to keep it for a time anyway, and to nurse it until she went back to work. Later she decided to keep it altogether and though it had to be put on the bottle, this was done under the nurse's direction and when last seen the baby was well and happy.

The large number of illegitimate babies, many of whom were found with caretakers, gave us many mothers who had to go to work and for whose babies some provision had to be made. One, whose mother was absolutely incompetent and indifferent, was put out to board with another woman. The nurse visited this baby, instructed the caretaker how to prepare food, etc., but the mother did not pay and the baby was sent back and forth several times before the nurse finally got it into an institution. Of course, by this time it was sick and died a short time after it entered.

Among the artificially-fed babies the work and instruction was along the lines started in 1910. The use of milk from licensed dairies was urged when it seemed advisable, though we never took the responsibility of changing a baby's food if it was doing well on what it was getting. We started many babies on their artificial food, however, using our simple formulas, going slowly and calling on a physician if the baby did not do well. Two things in addition to proper feeding were subjects of special instruction—keeping the babies cool during the intensely hot weather, and stopping all food at the first sign of digestive disturbance and not giving it again until all symptoms were gone—otherwise, to notify the nurse or a doctor. It was gratifying to see how many followed this latter plan, the mother telling the nurse, "Yes, the baby was sick last week, but I stopped feeding it and gave the castor oil and then started back with real weak food."

Barley flour was furnished whenever the mothers could not buy it, as well as bottles and other appliances for preparing food. Ice tickets were furnished us by the Ice Mission, but we had not much need for them, as ice was nearly always found when the baby was on the bottle.

Some babies were referred to us so desperately ill that nothing could be done. Some of these were taken to hospitals at once, in what proved a vain effort to save them, as they died a few days later.

On the other hand, the babies who were referred to us early, by physicians, before they were even sick, did especially well. One baby, Virginia, was referred to us by the doctor when about a month old. She was premature, very frail, weighing less than 7 lbs. From birth, she had been fed artificially according to the formula on a milk-sugar box and improperly. The mother was very willing to be taught and the baby was put on our formula, modified to suit its individual need, and kept under supervision until it was ten months old, in September, when the family moved out of the State. This baby was not only well when it left Richmond, but had not had one day's illness during the summer. The nurse, in this case, had intelligent and active cooperation on the part of the mother, but the father was out of work a good deal of the summer and it would have been impossible for them to have paid a physician to supervise the baby's feeding and general management, without which it almost certainly would have been ill, as it was the first and the mother quite without experience. As in 1910, there were many visits paid that either seemed not needed, because the mother did know how to care for her baby, or useless, because she was indifferent. To get hold of the mothers who most needed help and to select the babies whose chances for living seemed poorest was a very real task. The experience gained in one year's work in many different directions enabled us to select for supervision babies of which a very large proportion would have died but for outside help. Naturally, not all of these could be saved. Indeed, it would have been expected that by no efforts whatsoever could the chances of survival for such babies be made very great. The results, working with babies so selected, actually surpassed our expectations.

One case illustrates the effort made to get these babies. A news item in a morning paper told of a colored mother dropping dead on the street with a nursing infant in her arms. As observation had shown that among the poor the death of the mother is frequently followed by the death of the baby, a nurse was sent to look it up. The baby, not quite three months old, was turned over to a neighbor, and, so suddenly deprived of its mother's milk in the hot weather, was taken sick at once. The nurse did all she could, even getting breast-milk for it from another mother on her list. But there was really no one in the family to care for it and it was sent to another part of town and lost sight of, until the death certificate came in some weeks later.

Looking up twins, whenever that was possible, offered another method of approach that hardly ever failed. Usually a surprise, not always a pleasant one, twins are nevertheless interesting from the difficulties they present if from no other reason. We had on our list during the year 18 sets of twins—36 babies, of whom 7 died. The most faithful and persistent work failed to save some, even when it had seemed possible. Breast-feeding was kept up in some instances, where, except for the nurse's instructions it would have been given up early, because of the trouble of nursing two babies. Nearly all of the twins were seen soon after birth. This made the death rate among them higher than if the first visits had been paid later, after the elimination of those who, through congenital weakness, naturally succumb during the first weeks of their lives. The Willis babies contracted whooping cough before they were one month old and both died under three months. Of one set, born in November, 1910, watched and helped from birth, whose lives were probably saved by supervision in the winter, one died in July, the other in November. The disadvantages under which these babies did their best to live were so great that probably nothing but mother's milk could have been counted on to save them. But with many we were more fortunate. The nurse found one set, where the mother had had twenty children. The two last, the twins, seemed to her almost a disgrace and so ashamed was she that the poor little babies never got beyond the front door, spending most of their time in the house. The nurse persuaded the mother to put them in the back yard, errors in feeding were corrected (they were bottle-fed) and the babies stayed well all summer.

Ten cases of opthalmia neonatorum were found among the newly-born babies. These had been attended by midwives and the mothers told that the discharge was caused by the light. As usual no doctor had been called to these cases. We reported them to oculists, Dr. Dunn and Dr. Hopkins, to whom we are much indebted for their interest and the help they gave us. After several cases had been seen personally by the physicians, the nurse herself treated the rest, after reporting them, by the routine method. In two cases treatment was refused until the eyes were in bad condition. That the sight was saved in all cases is certainly due to the faithfulness with which the nurse followed them up.

The total number of visits made to September 1, 1911, when the services of the two nurses engaged for the summer were dispensed with, was 4,278. Sixty (60) visits were made to 25 expectant mothers, and it is interesting to note that all their babies did well. Besides this, every fatal case of infantile diarrhea in the city was investigated. There were over 200 such visits made. In connection with this, other work was done that seems especially interesting. In one section of the city, Penitentiary Bottom, where for years past, there had been a number of deaths from infantile diarrhea each summer, there were none from this cause all the summer and fall of 1911. This seemed so remarkable, in view of the known unhygienic surroundings, as well as the class of people making up a large proportion of that section, that a nurse was sent to see if there were a dearth of babies there. The normal number was found, however, and the reason for the freedom from diarrheal deaths remains obscure. During all of 1911 there were only 2 deaths in this section from infantile diarrhea, one in November, one in December and both in infants over one year of age.

Work which was closely related to the direct visiting of infants in their own homes and which took considerable time as well, was done in the inspection and "straightening out" of the various maternity and foundling homes in the city. In accordance with the city ordinance and the State law under which it was adopted, licenses were issued to six of these, after they were found to conform to the rules and requirements of the State Board of Charities and Corrections and the Richmond Health Department. Two "baby farms" were investigated and, being found not up to the requirements, were broken up.

The improvement made in the licensed places was marked. One institution, where the mortality for years had been nearly 100 per cent. publicly expressed its gratitude for the work of the State Board of Charities and Corrections and the Richmond Health Department in helping to improve conditions.

Certain tables covering the results of our work have been handed to you personally for incorporation in that part of your annual report dealing with the prevention of infant mortality.

The recommendation, which seems most essential in continuing the work in order to accomplish all that might be done, is the employment of nurses throughout the year. Much office work is necessary to systematize and make efficient the work in the field. All birth certificates are closely watched to get in touch with probable candidates for supervision as well as to see that these records, which are of the greatest importance in themselves, are as correct as possible; death certificates of all infants under one year are gone over to see whether the births of those infants have been reported, if not, to get them reported; all births and deaths in infant and maternity homes are checked up and statistics of the causes of deaths under one year kept separately, so that all possible information in regard to the infant situation in Richmond is always at hand. The keeping of the records of the babies visited, to tabulate and judge of results and plan intelligently for the future, in itself takes a great deal of time. Besides this, the confusion arising from having nurses, new to the work and hence unfamiliar with the districts and with the work itself, assume charge of a large number of babies so shortly before the critical time of the year does not result in as good work as I feel confident can be done.

In 1911, we were fortunate, both in obtaining nurses who did excellent work and in fact that they were able to keep it up throughout a very hot summer. Then, again, ignorant mothers cannot be taught in a few lessons even the simplest rules of baby hygiene; but if the babies can be followed from birth the mothers' confidence is gained in the first place and the lessons taught as needed. Over and over again must they be repeated in some instances, in others, the mother grasps things so quickly, intelligently and eagerly it seems a pity that instruction and help should not be here always for the asking.

I am, sir,

Respectfully,

ELISABETH DETWILER, R. N.

REPORT OF INSPECTOR OF MILK AND FOOD SUPPLIES.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as Inspector of Food Supplies for the year ending December 31, 1911.

Inspections of stores, ice cream plants, fish auctions, commission houses, cold storage plants, bakeries and depots	8,608
Permits granted	387
Amount paid to City Treasurer as shown by Auditor's receipts	$ 774 00
Samples of milk to Chemist	2,029
Samples of milk to Bacteriologist	1,684
Milk condemned or returned to owner	2,580 gals.
Milk ordered to churn	3,692 gals.
Sour cream dumped	5 gals.

CASES TO COURT.

1 case for selling milk below standard, fined	$ 25 00
1 case for selling milk without permit, fined	10 00
1 case for selling eggs not suited for food, fined	10 00

Permits revoked	11
Permits restored	19
Permits suspended	10
Permits refused	14

FOOD CONDEMNED AND DESTROYED.

	lbs.	Value.
Meats	4,275	$ 385 16
Vegetables	45,133	656 74
Fish	43,901	966 50
Poultry	492	80 90
Eggs	297	46 50
Game	11,585	1,061 13
Oysters	1,050	68 60
Groceries	50	5 00
Fruits	8,999	188 80
Melons	8,000	105 00
Total	123,782	$3,564 33

Milk cans	4
Dairy wagons	4
Drivers ordered from wagons on account of uncleanness	3

SAMPLES TO CITY CHEMIST, OTHER THAN MILK.

Butter	1
Sweet cream	3
Ice cream	10

My predecessor, Mr. W. T. Holdsworth, died February 19, 1911. I was elected and installed in his place on March 1, 1911, and Mr. C. J. B. Hare was elected as Assistant Food Inspector on the same date.

I cannot too highly commend Mr. Hare for his energy, perseverance and faithfulness in the discharge of his duty.

I also cheerfully bear testimony to the Dairy Inspector and his Assistant as to their assiduity in preventing the lowering and maintaining the standard of milk in this city.

There was very little poultry condemned during the past year. This was due largely to the absence of any cold storage poultry being put on the market. The quantity and condition was above the average. The condemnation of large numbers of rabbits in fur and wild turkeys and ducks in feathers was caused by weather conditions. I am pleased to note the protection of food supplies from flies, dust and dogs has been generally complied with. Shippers are more careful as to handling and properly caring for shipments. Our merchants are continually warning and keeping their shippers posted as to supplies and demands, and to this is largely due a most excellent condition of our market.

Respectfully submitted,

E. M. NOBLE,
Food Inspector.

REPORT OF DAIRY INSPECTOR.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to present to you my report as Dairy Inspector for the year ending December 31, 1911.

Number of visits to dairy farms	1,474
Number of dairies visited and scored	161
Number of scores made	1,220

Class	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
60 to 70	0	0	1	0	0	1	2	0	1	1	1	1
70 to 80	43	37	50	45	44	48	42	43	41	41	35	25
80 to 90	52	47	57	45	57	51	60	59	57	57	62	62
90 to 100	7	7	6	2	6	4	2	5	2	3	3	5
Total number of scores made during month	102	91	114	92	107	104	106	107	101	102	101	93
Number of dairies scored which continued to sell milk and cream during month	102	87	111	92	107	102	103	106	100	101	100	92
Average score	81.6	81.7	80.8	80.4	81.4	81.2	81.1	81.1	81.3	81.3	81.6	82.6

Permits refused	14
Permits suspended	10
Permits suspended and restored	10
Permits revoked	11
Permits revoked and restored	10
Average score of 10 places whose permits were revoked	66.2
Average score of 10 places whose permits were revoked and restored	78.9
Permits revoked and not restored	1
Parties fined in Police Court (1 for selling milk without permit, 1 for selling milk below standard)	2
Amount of fines paid in Police Court	$ 35 00
Diseased cows found and use of milk from same ordered discontinued (10 with garget, 1 giving stringy milk, 1 with inpured teat, 1 with abscess on udder, 1 with inflamed bag, 6 with cowpox)	20
Tubercular cows ordered permanently removed from herd	2
Gallons of milk condemned	2,580
Gallons of milk ordered to churn	3,692
Samples of milk taken for bacteriological examination	1,685
New barns built during year	33
New milkhouses built during year	26
New barns now under construction	9
New milkhouses now under construction	7
Number of new shippers to the Richmond market during the past year	31
Number of shippers that have discontinued shipping to Richmond during the past year	20

It is probable that no source of milk supply outside of a certified one surpasses that of Richmond, and it is doubtful if any other equals it. When we take into consideration the following facts one can readily realize why the people of Richmond are receiving this clean wholesome milk. As 93 per cent. of the milk consumed in Richmond is produced within a radius of nine miles of the centre of the city, making an efficient and rigid inspection of the dairy farms on which it is produced possible, milk is delivered to the city from the farms twice daily—or in about two hours after the cows have been milked—and the co-operation on the part of the dairymen in carrying out the requirements of this department makes the Richmond supply second to none.

There has been an over-supply of milk and cream during the past year in Richmond. This over-supply can be attributed to the following causes, an increase in the number of dairy farms selling their product on the Richmond market, and the enlarging of the herds of the dairymen who have been selling their product here for some time. These additions to the herds have been mostly of the better class of dairy cows, by that I mean cows that will give a larger flow of milk than the average cow used in supplying this market has been giving. The dairymen are fast learning that the low-producing cow is not profitable, as they consume nearly as much feed and require the same attention as a cow that will produce enough milk to show a profit after her feed has been paid for. A cow that will not give at least six times her own weight in milk in a year's time is not profitable to keep.

The results obtained from the use of the diffusion system of ventilation as required by the Richmond Health Department have proved more than satisfactory, and there is no doubt as to its efficiency. This system works automatically, with no attention, and there are no drafts in any part of the stable, the air being dry and fresh at all times. It consists of a number of openings cut in each side of the barn one foot wide by two feet long, about two and a half feet from the ground. There is one opening in front of each stall. These openings are covered with muslin weighing about one pound to each four and one-half yards, and have proved to furnish sufficient inlet for fresh air in a properly constructed barn, which should contain at least 500 cubic feet of air space for each stall. Where a barn is tightly sealed overhead it is well to provide as outtakes four pipes, eight to ten inches in diameter, one located in each inside corner of the barn, starting flush with the ceiling and extending to a height of at least one foot above the highest point of the roof. The muslin covered openings allow a continuous flow of fresh air past each cow, while the respired air will pass out of the barn by these outtakes.

No better proof of the efficiency of this system of ventilation as regards the health of the cattle can be had than is shown by the following results obtained during the past year, in which cows stabled in barns equipped with this system of ventilation for from three to five years have been tested for tuberculosis, with these results:

Herd No. 1—Number of cows tested, 80; reactors, 0
Herd No. 2—Number of cows tested, 25; reactors, 2
Herd No. 3—Number of cows tested, 18; reactors, 1

Herd No. 4—Number of cows tested, 28; reactors, 0
Herd No. 5—Number of cows tested, 26; reactors, 1
Herd No. 6—Number of cows tested, 24; reactors, 1

After having this system of ventilation under close observance for the past five years, I have no hesitation in stating that it is the best system of ventilation for a dairy barn or any other farm building that has ever been invented though some other systems cost a hundred times as much.

During the past year 33 new barns and 26 new milkhouses have been built by producers for the Richmond market. The majority of these barns and milkhouses have been modern, up-to-date places. Some of the barns and milkhouses are constructed entirely of concrete. With such a building there is no annual expense for painting and repairs, and if a farmer has sand and gravel on his place the first cost is very reasonable.

The improvements made by the dairymen some distance from the city located on the railroads running into Richmond have been very gratifying. Of the 33 new barns built during the past year, 19 have been on these dairy farms.

This Department cannot too strongly recommend the use of wet blankets, or jackets, to cover milk cans during transportation in the warm weather, as the results obtained by the following experiment made during the past summer give a practical demonstration of their worth. Two cans of milk in the country registered 64 degrees. One can was covered with a wet blanket and the other was left uncovered. They were both placed in a wagon and sent to the city. On their arrival two hours later it was found on taking the temperatures that the can that had been covered with a wet blanket registered 69 degrees, and the uncovered can 76 degrees, showing a difference of 7 degrees in favor of the protected can.

The entire State of Virginia passed through a very severe drought during the summer of 1911, making hundreds of acres of pasture land bare. This makes it plainly evident that one of the best ways to supplement the pastures is to provide ensilage for the whole year. The use of silage for summer feeding is a comparatively new thing in this part of the country, but last summer's dry spell teaches us the value of it.

The removal of the unprofitable cows from the herds and the supplying of their places by cows that will produce sufficient milk to show a profit will do more to make the business of dairying successful than any other one thing. A pure-bred sire of known milk-producing strain will prove a valuable addition to any herd.

Numerous feeding experiments have shown that it is impossible, where cows are not half starved or underfed, to change the fat content of milk. A cow in normal condition, capable of producing milk containing 4 per cent. butter-fat will not on an increase of feed produce milk that will contain 4.5 or 5 per cent. butter-fat. Heavy feeding, or a change from dry feed to pasture will have a tendency to increase the quantity of the milk, but not its richness. The period of lactation will have a slight effect on the fat content of milk. Some feeds, such as turnips, when fed in large quantities, make very poor milk.

One of the best methods of improving the milk of a herd is in disposing of all cows whose milk tests below 3 per cent. butter fat and then using a pure-bred sire of a strain known to produce rich milk and raising all heifer calves from the heavy milk-producing cows to be added to the herd when they come fresh.

This Department makes every effort to see that all milk cans are returned to the dairymen washed, but this does not mean that the cans need no further attention on arrival at the farm.

A number of herds were found during July and August in which a great many of the cows were suffering from a disease of the eyes, which proved to be contagious. It was impossible to find the cause of this disease, but a very good cure was found in using the following application twice daily:

Nitrate of silver	3 grains
Water	1 ounce
Sulphate of morphia	1 grain

Powdered calomel dusted into the eye twice daily also proved very beneficial.

The only way to get a clean safe milk is to work at its source of supply, and with that end in view a large part of the time of the Dairy Inspectors is being spent on the dairy farm, and, where necessary, in educating the dairymen in the proper methods of producing clean milk.

The average score of 82.6 per cent. for December makes a new high mark for our dairies, but with the co-operation of the dairymen a still higher average is looked for the coming year.

Respectfully submitted,

T. J. STRAUCH,
Dairy Inspector.

REPORT OF CITY CHEMIST.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I herewith submit a report of the Chemical Examinations made for the Health Department during the year 1911.

	For City.	At Citizen's Request.
Butter	1	0
Cream	3	3
Ice Cream	10	0
Formaldehyde	2	0
Milk, cows	2,027	65
Milk, human	1	1
Tomatoes, canned	1	0
Well Water	1	0
Total	2,046	69

Grand total 2,115

Table showing the average composition of City's samples of cows' milk.

	Fats.	Solids not fat.	Total samples.
All samples	3.48	9.24	12.72
Below-standard samples	3.16	8.83	11.99

The per cent. of samples below standard during the year was....	20.0
The per cent of samples below 3 per cent. in fats was............	6.45
The per cent. of samples below 9 per cent. solids not fat was....	15.03
The per cent. of samples below 12 per cent total solids was......	10.16

Very truly yours,

JAMES M. WHITFIELD,
City Chemist.

REPORT OF PLUMBING INSPECTOR.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as Plumbing Inspector for the year ending December 31, 1911.

The past year has been another very active one in building improvements, which can readily be seen in every section of our city. During the past year plumbing inspections and tests were made in 591 new buildings, many of which were of very large dimensions, consuming a great deal of time in making the numerous inspections. Frequent delays in the construction of buildings of such character caused further consumption of a great deal of time for inspections. We made during the year 2,658 inspections under the head of "Additions and Alterations in Plumbing." This indicates a vast improvement in this special line of work, by the removal of old and insanitary fixtures and drains, and requiring the installation of modern, up-to-date plumbing fixtures to conform with our plumbing regulations.

While it is true that much of the work in this line may have been compulsory, yet it is very gratifying to know that in many instances the work was done by the owners and agents to improve the sanitary condition of the premises without being forced by this Department.

The work of plumbing inspection is steadily increasing on account of the number of very large buildings being erected, together with the numerous sewer extensions that are being made and the other work in residential sections.

The present year opens up with a large number of new buildings under construction, while many others are being contracted for, which shows that another year of good prosperity in building operations is ahead of us.

My assistant, Mr. E. A. Boaz, has rendered very efficient service in the discharge of his duties, and his work has been very satisfactory. By the assistance rendered by Mr. Thos. W. Mitchell, the newly appointed Sanitary Officer, in making the necessary plumbing inspections in South Richmond, we are better equipped to meet the demands for inspections than formerly, and to give all work closer attention. This is very necessary in many instances where frequent inspections are required to fully carry out the City Ordinances.

I desire again to call your attention to the great importance of some health regulations being adopted requiring more than one water closet on premises according to the number of persons living thereon. When tenement houses are sublet in separate apartments to numerous people, and where there is only a single closet, such closets are generally found to be a menace to health as it is impossible to keep them in a sanitary condition on account of the number of persons using them. I trust, therefore, that such a regulation or ordinance may be adopted as a health measure to meet the requirements. I would also recommend that the proposition of installing drinking fountains in all our public buildings and parks is one worthy of your consideration, and I trust that in the near future the

Council may deem it wise to adopt such an ordinance prohibiting the use of the old drinking cup in all public places.

The question of considering the advisability of erecting public comfort stations is another important matter that has already received attention in many cities of this size; and I hope during the present year that something may be inaugurated along this line of public improvement.

In conclusion, I will say that I myself and the Assistant Plumbing Inspector have worked in conjunction with the Sanitary Officers of the Department wherever the occasion required it in the abatement of nuisances, and I fully appreciate the assistance rendered.

A tabular report of the work done during 1911 follows:

	Inspections Made	Plumbers Permits Issued	New Buildings Inspected	Additions and Alterations Inspected	Complaints Investigated	Notices Served on Agents and Owners	Police Court Cases
January	220	207	24	171	25	22	
February	226	133	31	177	18	18	
March	279	248	36	221	22	22	3
April	240	225	61	151	28	28	3
May	335	254	32	283	20	20	
June	256	247	68	198	20	20	2
July	202	191	59	117	26	26	
August	227	271	67	140	20	20	
September	522	200	66	221	35	35	
October	320	248	59	238	23	23	
November	269	249	44	202	23	23	1
December	388	185	44	317	27	27	
Total	3314	2658	591	2436	287	284	9

Respectfully submitted,

THOS. M. LANDERS,
Inspector of Plumbing.

REPORT OF THE PLUMBERS' EXAMINING BOARD.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit herewith my report as secretary of the Plumbers' Examining Board, for the year ending December 31, 1911.

Meetings held during the year	19
Journeyman plumbers examined	41
Number examined and found unqualified	6
Number examined and licensed	35
Number of licenses renewed	147

Respectfully submitted,
THOS. M. LANDERS,
Secretary of Plumbers' Examining Board.

FUMIGATOR'S REPORT.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report for the year ending December 31, 1911.

MONTH	SCARLET FEVER		TYPHOID FEVER		DIPHTHERIA		TUBERCULOSIS		OTHER CAUSES		TOTAL	
	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms
January	3	8	0	0	50	120	47	124	9	20	109	372
February	8	20	2	4	27	66	36	112	11	28	84	230
March	8	20	0	0	15	34	50	166	21	42	94	262
April	9	28	0	0	14	30	35	132	28	74	86	264
May	3	10	0	0	12	32	63	182	29	92	107	316
June	2	6	1	2	3	6	62	236	9	39	77	288
July	3	8	7	20	4	8	55	158	27	72	96	266
August	14	28	7	16	6	14	76	362	15	68	118	488
September	11	28	7	20	14	34	87	372	22	60	141	514
October	33	86	3	10	42	94	42	210	17	44	137	444
November	57	126	1	2	47	100	68	218	6	14	179	460
December	34	78	4	10	52	116	44	126	6	16	140	346
Total	185	446	32	84	286	654	665	2398	200	568	1368	4150

Respectfully submitted,

JAMES F. WALLER,
Fumigator.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my annual report of the work done at the White Tuberculosis Dispensary and by the visiting nurses for the year 1911.

There were 730 visits made to the dispensary during the year and 1,094 made by the nurses to the patients' homes. The number of visits made by the nurses seems too small proportionately. That must be explained by the fact that this year the failure of any patient to attend the dispensary for any month resulted in his or her discharge for nonattendance, and even though the nurses would continue to visit, no credit was received for the visits, as I had dropped patients from my report.

Of the patients attending the dispensary in 1910, 50 continued to come and receive treatment in 1911, and 112 new patients presented themselves for diagnosis, making 162 patients treated during the year. Of this number, the females outnumbered the males in 3 to 2 proportion. There were 13 cases arrested during the year, and 21 were sent to some sanitorium, 8 left the city, 41 were nontubercular and 5 died. Of the remaining 74, 35 are carried on the roll into this year and the remaining 39 have been lost sight of.

During the year the staff lost by resignation Dr. Wilmer Mercer, and his place was filled by Dr. Marstellar.

I wish to take this opportunity to thank the staff and nurses for their diligence and zealous co-operation.

The appended table of summaries gives a detailed account of the work month by month.

Respectfully submitted,

GILES B. GOOK, M. D.,
Chief of Clinic.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

MONTH.	SEX		AGE			STAGE OF TREATMENT			DIAGNOSIS			SPUTUM REPORT			WEIGHT			NO. OF VISITS		CONDITION					NO LONGER UNDER TREATMENT					
																												Referred		
	Male	Female	Under 20 years	20-40 years	Over 40 years	New patient	Old patient	Discharged	Tubercular	Non-tubercular	Undetermined	Positive	Negative	Not examined	Increased	Stationary	Diminished	To dispensary	By nurse	Disease arrested	Improved	Unimproved	Progressive	Died	No case	Left city	Lost sight of	To other dispensar's	To private physc'n	To sanitorium
1911																														
January	15	29	14	19	11	9	35	. .	33	3	8	10	21	13	11	26	7	62	130	1	15	21	6	1	3	1	. .	0	0	4
February	15	27	12	22	8	11	31	. .	29	7	6	5	26	11	10	23	9	71	101	2	12	25	2	1	7	0	. .	1	0	0
March	16	24	10	23	7	9	31	.	31	3	6	5	29	6	10	22	8	76	123	0	13	25	2	0	3	1		0	1	1
April	19	25	12	21	11	10	34		34	5	5	6	30	8	9	32	3	63	110	3	19	19	1	0	5	0	. .	0	0	2
May	17	22	12	16	11	11	28		31	2	6	5	26	5	4	24	11	59	107	1	5	31	1	1	2	1		1	0	4
June	14	20	10	15	9	8	26	. .	29	5	. .	4	26	4	6	16	12	51	78	1	6	24	2	1	5	2	. .	0	1	0
July	13	21	10	15	9	15	19		26	4	4	6	17	11	1	26	7	51	67	0	7	26	1	0	4	0	. .	1	0	2
August	15	21	12	12	12	4	32		32	2	2	4	24	8	9	18	9	64	102	1	11	21	3	0	2	1	. .	0	0	4
September	11	16	8	9	10	7	20	. .	23	1	3	3	16	6	6	18	3	53	62	1	7	18	1	0	1	0		0	0	1
October	15	20	7	17	11	9	26	. .	30	2	3	4	23	8	14	20	1	64	76	0	12	20	3	0	2	1	. .	3	0	1
November	14	23	9	15	13	10	27	. .	32	3	2	4	24	9	13	21	3	58	78	1	16	17	2	1	3	1	. .	0	0	2
December	12	25	8	19	10	9	28		29	4	4	3	23	11	12	19	6	58	65	2	10	22	3	0	4	0	.	0	0	0
Total	176	273	124	203	122	112	337		359	41	49	59	285	100	105	265	79	730	1094	13	133	269	28	5	41	8	. .	6	2	21

REPORT OF COLORED TUBERCULOSIS DISPENSARY.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my annual report of the work done at the Colored Tuberculosis Dispensary and by the visiting nurses during the year 1911.

There were 877 visits to the dispensary, and 1,660 visits were made by nurses to patients at their homes. Of the patients attending in 1910, 63 returned in 1911, and 88 new patients presented themselves for treatment, making a total of 151 patients for the year. The greatest number attending in any one month was 69 in July, and the smallest number was 38 in December.

The 151 patients who attended may be classified as follows:

Sex: 48 males, 103 females.

Age: 37 under 20, 86 20 to 40, and 28 over 40 years of age.

Diagnosis: 83 tubercular, 30 nontubercular, 38 undetermined.

Referred: To other dispensaries 19, to private physicians 17, to City Hospital or sanitoria 2.

Of the 83 tubercular patients, 45 attended fewer than four times, and hence are not classified below as to condition after treatment. Many of these came only once, as did also many of those whose diagnosis is undetermined.

The condition, after treatment, of the 38 tubercular patients who attended four or more times was as follows:

Disease arrested 7, improved 17, unimproved 10, progressive 4, died 0.

Although the dispensary is open from twelve to one p. m., an hour more suitable than any other for the working man, we realize the difficulties he has in attending, and that accounts for the small number of males treated. It is probably more important to have the females at the dispensary, since they live in the home with the family, or are employed in other homes as cooks, servants or maids. While the attendance is not so regular as we hope for, yet we feel that by directing and controlling the habits, in the home and on the streets, of the 83 tubercular patients under our care, we probably prevent infection of many others, who in turn would infect others, and thus propagate the disease by geometric progression.

For the protection of the healthy and the greatest benefit to the infected, segregation of consumptives is the ideal method, but many difficulties stand in the way of this plan of fighting the disease. General education as to what consumption is and the best means of coping with it, offer the greatest hope of banishing the disease. Promoting popular intelligence as to care, treatment and precaution is of vast importance. The unlimited and ever widening field of usefulness in the educational feature of the dispensary, constitutes one of its chief virtues.

In the dissemination of knowledge concerning tuberculosis and how the individual who has it should conduct himself, the dispensary stands first in importance. Due appreciation of the efficient and faithful services rendered along this line by the Instructive Visiting Nurses is hereby ackonwledged. The classes for whom the dispensary is intended, if not reached by it, will never have systematic attention, and while we may not cure many who apply for treatment, we may greatly alleviate their suffering, and control many foci of infection.

I record with pleasure my grateful appreciation of the valuable gratuitous services of my associates, Drs. R. S. Bosher, D. D. Talley and J. H. Smith, the dispensary physicians who make the dispensary work possible, and the untiring zeal and interest of the Instructive Visiting Nurses who contribute so largely to the care and comfort of the unfortunate sick.

The appended table of summaries gives a detailed account of the dispensary work, month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.
Chief of Clinic.

REPORT OF COLORED TUBERCULOSIS DISPENSARY

MONTH	SEX		AGE			STAGE OF TREATMENT			DIAGNOSIS			SPUTUM REPORT			WEIGHT			NO. OF VISITS		CONDITION					NO LONGER UNDER TREATMENT					
																												Referred		
1911	Male	Female	Under 20 years	20-40 years	Over 40 years	New patient	Old patient	Discharged	Tubercular	Non-tubercular	Undetermined	Positive	Negative	Not examined	Increased	Stationary	Diminished	To dispensary	By nurse	Disease arrested	Improved	Unimproved	Progressive	Died	No case	Left city	Lost sight of	To other dispensar's	To private physician	To sanitorium
January	17	40	19	28	10	10	47	0	40	6	11	17	33	7	19	27	11	76	136	4	32	15	6	0	5	0	0	1	2	0
February	19	35	21	22	11	6	48	0	36	9	9	17	25	12	12	35	7	67	109	3	25	19	6	1	6	0	3	1	2	0
March	17	36	14	27	12	6	47	0	37	6	10	17	26	10	15	30	8	75	184	0	28	21	3	1	0	0	0	3	4	0
April	14	39	13	27	11	7	46	0	33	7	13	17	26	10	15	23	15	87	105	1	18	29	4	1	0	0	0	0	1	0
May	15	49	20	30	14	13	51	0	44	9	11	18	28	18	18	28	23	123	202	1	20	33	9	1	5	0	0	5	0	0
June	19	48	17	32	13	7	55	8	43	8	11	16	25	21	12	28	22	83	177	3	16	35	7	1	8	0	0	3	2	0
July	21	48	18	37	14	13	56	18	46	5	18	18	23	28	11	21	30	77	167	2	26	35	5	1	3	1	0	1	2	0
August	18	43	10	35	16	9	52	14	34	4	23	16	21	24	10	21	21	84	165	0	13	30	1	1	2	0	0	1	0	0
September	14	42	9	34	13	3	53	13	32	6	18	14	20	22	18	19	15	57	133	0	13	28	4	0	3	4	1	1	1	0
October	14	35	6	33	10	7	42	12	31	3	15	14	20	15	20	15	14	61	105	0	20	26	3	0	4	0	1	2	1	1
November	14	31	6	28	11	6	39	8	29	2	14	14	11	9	10	18	4	52	94	1	19	21	3	0	0	1	1	0	1	1
December	12	26	4	24	10	1	37	0	25	2	11	13	18	7	15	16	7	35	83	3	18	15	2	0	0	0	1	1	1	0
Total	194	467	157	357	145	88	573	73	430	67	164	191	276	183	175	276	177	877	1660	18	248	307	53	7	36	6	7	19	17	2

REPORT OF DISTRICT PHYSICIAN, FIFTH DISTRICT.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Fifth District for the year ending December 31, 1911.

Number of visits, white	236	
Number of visits, colored	2,400	
Total number of visits		2,636
Number of white patients	98	
Number of colored patients	1,583	
Total number of patients		1,681
Number of patients, male	447	
Number of patients, female	1,234	
Total number of patients		1,681
Number of deaths, white	1	
Number of deaths, colored	17	
Total number of deaths		18
Number of patients sent to the City Home	50	
On hand December 31, 1911	6	

Respectfully submitted,

L. D. BATKINS, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, SIXTH DISTRICT.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Sixth District for the year beginning April 1 and ending December 31, 1911.

Number of visits, white	966	
Number of visits, colored	62	
Total number of visits		1,028
Number of white patients	504	
Number of colored patients	50	
Total number of patients		554
Number of patients, male	142	
Number of patients, female	412	
Total number of patients		554
Number of deaths, white	8	
Number of deaths, colored	1	
Total number of deaths		9
Number of patients sent to the City Home	19	
On hand December 31, 1911	7	

Respectfully submitted,

JULIAN W. SLOAN, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, SEVENTH DISTRICT.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Seventh District for the year ending December 31, 1911.

Number of visits, white	1,622	
Number of visits, colored	720	
Total number of visits		2,342
Number of white patients	563	
Number of colored patients	262	
Total number of patients		825
Number of patients, male	276	
Number of patients, female	549	
Total number of patients		825
Number of deaths, white	7	
Number of deaths, colored	2	
Total number of deaths		9
Number of patients sent to the City Home	24	
On hand December 31, 1911	12	

Respectfully submitted,

E. T. RUCKER,
District Physician.

REPORT OF CHIEF SANITARY INSPECTOR.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as Chief Sanitary Inspector for the year ending December 31, 1911. This report embraces the separate reports of each of the Sanitary Officers, and also covers the work done by the special inspectors appointed to have all dry closets repaired to conform to the rules and regulations of the Richmond Health Department and to have kept records of the location and owners of this class of property.

Permit me to say that the Sanitary Officers have all done creditable work, and I invite your careful attention to and consideration of their reports. The work of sewer extension is being prosecuted with unusual satisfaction, and you can expect, in all probability, before the summer months to have at least 1,500 dry closets done away with, and I have been assured by the contractor in charge of this work that it will be ready for house connections by the first of March, and, in all likelihood, by the 15th of February. Even this delay has not prevented us from having a large number of sewer connections made where trunk lines are independent of this delayed culvert. There are 788 sewer connections ordered and these were the means of doing away with 704 dry closets. This number is somewhat offset by having not less than 40 houses erected where public sewers are not now available. There is a net gain, however, of 664 dry closets abolished as shown by these figures. But it is reasonably certain that the streets on which these 40 houses are located will be sewered, and this will, in the end do away with these newly constructed privies. An ordinance approved September 16, 1911, created the position of fifth Sanitary Inspector, which was filled by the election of Mr. Thos. W. Mitchell. The Board of Health is to be congratulated upon securing the services of Mr. Mitchell, who, for a number of years, was engaged in the plumbing business in this city, and is widely known for honesty and integrity. He has been placed in South Richmond, and has in every way fulfilled the requirements of his position. Aside from the large number of sanitary inspections made by Mr. Mitchell, he has also managed the plumbing inspections, and this in no way interferes with his regular duties as a Sanitary Officer. We have been able to inaugurate a house-to-house inspection in this section of the city, and it is the only part of Richmond that is securing this attention. It has always been my desire to carry out this plan in the entire city, but the present force is entirely too small to pursue this course. I sincerely trust that the ordinance now pending before the City Council asking for two additional inspectors may meet with their approval.

The only change which took place in this Department during the year was the resignation of Mr. John T. Gill, who for four years served in the capacity of Sanitary Officer, and during his incumbency he won the admiration and respect of all with whom he came in contact. Mr. Gill leaves behind him an enviable record, which he gained by thorough and complete devotion to the duties of his office. It is needless to state that this Department lost a most valuable man, both in devotion and character, through the resignation of Mr. Gill, which course he took in order to provide a better livelihood for himself and family, and in his new field of business we wish him Godspeed and prosperity. Mr. S. A. Hall was elected to fill this vacancy. He has shown himself equal to his task, and will, with a few more months of experience, be well qualified for his work.

I wish to call your attention to the urgent necessity of more public comfort stations to be located in suitable places, preferably in congested localities. The general condition of alleys, especially in concealed places, is an evidence of the above need. It is needless to state that this horrible nuisance frequently exists in alleys close to the business center of the city.

In conclusion, I wish to express my acknowledgment of the uniform courtesy which has been shown me by all of the sanitary officers, for such results could not have been obtained had not the most pleasant relations existed between them and myself.

My tabular report follows:

Summons served	255
Cases in Court	369
Old closets ordered repaired	1,318
New closets put in	490
Dry closets inspected	4,314
Dry closets ordered cleaned and destroyed	704
Closet boxes ordered in and houses repaired	2,771
Old stench traps repaired	204
New stench traps ordered in	87
Old hydrants ordered repaired	381
New hydrants ordered in	264
Sewer connections ordered	788
Sewers ordered repaired	247
Sewers ordered unchoked	697
Water connections ordered	68
Rain conductors ordered repaired	133
Kitchen sinks ordered repaired	214
Kitchen sinks ordered trapped	100
Water pipes ordered repaired	386
Yards inspected	7,660
Yards ordered cleaned and filled	2,274
Dry closets built new	162
Vacant lots ordered cleaned	59
Areas inspected	108
Areas ordered cleaned and repaired	61
Cellars ordered cleaned	93
Dead animals reported	166
No cause for complaint	73
Alleys inspected	567
Alleys ordered cleaned and repaired	238
Old wells inspected	101
Old wells condemned and ordered filled	299

Manure piles ordered removed and barrels ordered	352
Leaky roofs ordered repaired	63
Contagious disease cards put up	900
Original houses visited	9,659
Premises inspected	10,010
Agents, Owners and Plumbers visited	5,793
Miscellaneous visits and orders	932
City water ordered on premises	1,271
Culture stations visited	435
Birth certificates investigated	187
Catch basins reported	222
Stables inspected	452
Visits for Plumbing Inspector	220
Total visits made	36,289

Respectfully submitted,

W. T. TUCK,
Chief Sanitary Inspector.

REPORT OF SANITARY OFFICER, FIRST DISTRICT.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.
SIR:

I have the honor to submit to you my report as Sanitary Officer for the First District for the year ending December 31, 1911.

Summons served	104
Cases in court	159
Old closets ordered repaired	303
Old closets houses ordered repaired	26
New closets put in	23
Dry closets inspected	381
Dry closets ordered cleaned and destroyed	336
Closet boxes ordered in and repaired	29
Old stench traps repaired	42
New stench traps ordered in	5
Old hydrants ordered repaired	65
New hydrants ordered in	93
Sewer connections ordered	341
Sewers ordered repaired	14
Sewers ordered unchoked	112
Water connections ordered	1
Rain conductors ordered repaired	26
Bath tubs ordered repaired	10
Kitchen sinks ordered repaired	43
Kitchen sinks ordered trapped	10
Water pipes ordered repaired	93
Yards inspected	1,541
Yards ordered cleaned	703
Dry closets ordered new	11
Vacant lots ordered cleaned	2
Vacant lots with water on them and streets	38
Areas inspected	3
Areas ordered cleaned	2
Dead animals reported	3
Out-houses ordered cleaned	2
No cause for complaint	145
Alleys ordered cleaned	34
Old wells inspected and ordered cleaned and repaired	6
Old wells condemned and ordered filled	147
Manure piles ordered removed and boxes ordered	19
Leaky roofs ordered repaired	3
Contagious disease cards put up	342
Original houses visited	1,577
Premises inspected and revisited	3,790
Agents, Owners and Plumbers visited	1,333

Miscellaneous visits and orders	388
City water ordered on premises	457
Culture stations visited	111
Birth certificates investigated	23
Catch basins reported	22
Stables inspected	10
Total number of visits made	7,287

Respectfully submitted,

W. A. CRUMP,
Sanitary Officer.

REPORT OF SANITARY OFFICER, SECOND DISTRICT.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the Second District for the year ending December 31, 1911.

Summons served	109
Cases in court	126
Old closets ordered repaired	259
New closets put in	132
Dry closets inspected	265
Dry closets ordered cleaned and destroyed	126
Closet boxes ordered in and houses repaired	52
Old stench traps repaired	70
New stench traps ordered in	39
Old hydrants ordered repaired	88
New hydrants ordered in	4
Sewer connections ordered	107
Sewers ordered repaired	152
Kitchen sinks ordered trapped	38
Sewers ordered unchoked	141
Water connections ordered	21
Rain conductors ordered repaired	37
Kitchen sinks ordered repaired	68
Water pipes ordered repaired	127
Yards inspected	2,095
Yards ordered cleaned	604
Vacant lots inspected	41
Vacant lots ordered cleaned	35
Dry closets built new	65
Areas ordered cleaned	37
Cellars ordered cleaned	32
Dead animals reported	98
Out-houses ordered cleaned	21
No cause for complaint	66
Alleys ordered cleaned	125
Old wells inspected and ordered cleaned and repaired	29
Old wells condemned and ordered filled	62
Manure piles ordered removed and boxes ordered	95
Leaky roofs ordered repaired	14
Contagious disease cards put up	307
Original houses visited	2,115
Premises inspected and revisited	2,359
Agents, Owners and Plumbers visited	2,143
Miscellaneous visits and orders	188

City water ordered on premises	180
Culture stations visited	119
Birth certificates investigated	57
Catch basins reported	92
Stables inspected	132
Total number of visits made	7,592

Respectfully submitted,

W. H. MOSLEY,
Sanitary Officer.

REPORT OF SANITARY OFFICER, THIRD DISTRICT.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the Third District for the year ending December 31, 1911.

Summons served	23
Cases in court	41
Old closets ordered repaired	535
New closets put in	200
Dry closets inspected	302
Dry closets ordered cleaned and destroyed	110
Closet boxes ordered in and houses repaired	137
Old stench traps repaired	28
New stench traps ordered in	9
Old hydrants ordered repaired	132
New hydrants ordered in	21
Sewer connections ordered	137
Sewers ordered repaired	18
Sewers ordered unchoked	291
Water connections ordered	50
Rain conductors ordered repaired	25
Kitchen sinks ordered repaired	52
Kitchen sinks ordered trapped	9
Water pipes ordered repaired	66
Yards inspected	2,366
Yards ordered cleaned and filled	532
Dry closets built new	29
Vacant lots ordered cleaned	8
Areas inspected	28
Areas ordered cleaned and repaired	9
Cellars ordered cleaned	22
Dead animals reported	3
Out-houses ordered cleaned	1
No cause for complaint	145
Alleys ordered cleaned and repaired	41
Old wells inspected, ordered cleaned and repaired	11
Old wells condemned and ordered filled	81
Manure piles ordered removed and barrels ordered	113
Leaky roofs ordered repaired	7
Contagious disease cards put up	100
Original houses visited	3,644
Premises inspected and revisited	278
Agents, Owners and Plumbers visited	802
Miscellaneous visits and orders	155
City water ordered on premises	219

Culture stations visited	83
Birth certificates investigated	46
Catch basins reported	14
Stables inspected	118
Visits with other inspectors	75
Visits for Plumbing Inspector	52
Total number of visits	5,472

Respectfully submitted,

W. T. TUCK,
Sanitary Officer.

REPORT OF SANITARY OFFICER, FOURTH DISTRICT.

DR. E. C. LEVY,
Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as Sanitary Officer for the Fourth District for the year ending December 31, 1911. This report is intended to cover the work done by Mr. John T. Gill for the first nine and a half months of the year and that done by me for the remaining three and a half months.

Summons served	15
Cases in court	40
Old closets ordered repaired	182
New closets put in	121
Dry closets inspected	140
Dry closets ordered cleaned and destroyed	79
Closet boxes ordered in and houses repaired	40
Old stench traps repaired	44
New stench traps ordered in	31
Old hydrants ordered repaired	81
New hydrants ordered in	27
Sewer connections ordered	106
Sewers ordered repaired	51
Sewers ordered unchoked	123
Water connections ordered	16
Rain conductors ordered repaired	34
Kitchen sinks ordered repaired	46
Kitchen sinks ordered trapped	27
Water pipes ordered repaired	61
Yards inspected	1,517
Yards ordered cleaned	382
Vacant lots inspected	30
Vacant lots ordered cleaned	8
Areas inspected	30
Areas ordered cleaned	13
Cellars ordered cleaned	33
Dead animals reported	45
Out-houses ordered cleaned	26
No cause for complaint	150
Alleys ordered cleaned	38
Old wells inspected, cleaned and repaired	30
Old wells condemned and ordered filled	48
Manure piles ordered removed and barrels ordered	60
Leaky roofs ordered repaired	34
Contagious disease cards put up	133
Original houses visited	1,630
Premises inspected and revisited	2,829

Agents, Owners and Plumbers visited	1,058
Miscellaneous visits and orders	175
City water ordered on premises	371
Culture stations visited	104
Birth certificates investigated	56
Catch basins reported	94
Stables inspected	121
Total number of visits made	5,389

Respectfully submitted,

S. A. HALL,
Sanitary Officer.

REPORT OF SANITARY OFFICER, FIFTH DISTRICT.

Dr. E. C. Levy,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the Fifth District (Washington Ward) from the date of my election, October 1, 1911, to December 31, 1911.

Sermons served	4
Cases in court	3
Old closets ordered repaired	39
New closets put in	14
Dry closets inspected	226
Dry closets ordered cleaned and destroyed	53
Closet boxes ordered in and houses repaired	13
Old stench traps repaired	20
New stench traps ordered in	3
Old hydrants ordered repaired	15
New hydrants ordered in	119
Sewer connections ordered	97
Sewers ordered repaired	12
Sewers ordered unchoked	30
Water connections ordered	80
Rain conductors ordered repaired	11
Kitchen sinks ordered repaired	5
Kitchen sinks ordered trapped	16
Water pipes ordered repaired and valves	39
Yards inspected	141
Yards ordered cleaned	53
Vacant lots inspected	6
Vacant lots ordered cleaned	6
Areas inspected	6
Cellars ordered cleaned	6
Out-houses inspected, Dead animals reported	17
Out-houses ordered cleaned	23
Alleys inspected, no cause for complaint	61
Alleys ordered cleaned and repaired	0
Old wells inspected, ordered cleaned and repaired	16
Old wells condemned and ordered filled	61
Manure piles ordered removed	65
Leaky roofs ordered repaired	5
Contagious disease cards put up	18
Original houses visited	683
Premises inspected and revisited	754
Agents, Owners and Plumbers visited	457
Miscellaneous visits ordered	26

Dry closets ordered new	36
City water ordered on premises	44
Culture stations visited	18
Birth certificates investigated	5
Stables inspected	71
Visits for Plumbing Inspector	168
Total number of visits made	3,549

Respectfully submitted,

THOS. W. MITCHELL,
Sanitary Officer.